
GLOBAL PROGRAMME ON AIDS

PROGRAMME OF
MATERNAL AND CHILD HEALTH
INCLUDING FAMILY PLANNING

AIDS PREVENTION:
GUIDELINES FOR MCH/FP
PROGRAMME MANAGERS

II. AIDS AND MATERNAL
AND CHILD HEALTH



WORLD HEALTH ORGANIZATION

MAY 1990

[illegible]

COMMUNITY HEALTH CELL

AIDS PREVENTION:

GUIDELINES FOR MCH/FP PROGRAMME MANAGERS

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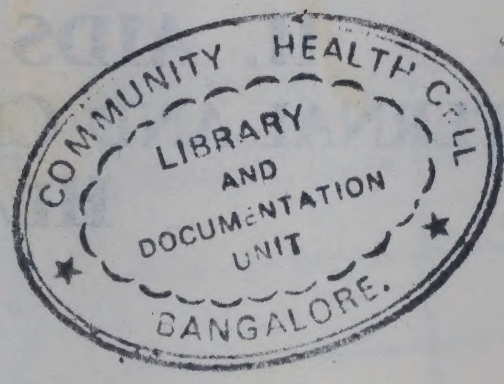
October 1990

WHO/CH/91.002
Geneva, 1991
Printed in Switzerland

AIDS PREVENTION:

GUIDELINES FOR MCHFP PROGRAMME MANAGERS

03229
DIS-325



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Preface

The 1980s have brought into prominence the increasing occurrence of a variety of sexually transmitted pathogens. One of these, the human immunodeficiency virus (HIV) which causes the acquired immunodeficiency syndrome (AIDS), is spreading rapidly throughout the globe and is currently thought to infect at least six million people, of whom about one third are women. The majority of those infected appear, at present to be destined to die a premature death.

While HIV can be contracted through blood transfusions and sharing needles, it is primarily spread through sexual contact, and increasingly from infected mothers to fetus or infant.

In the absence of an effective vaccine or cure for HIV infection, education on how HIV is transmitted and how exposure to it can be minimised or eliminated is the most important means of reducing its spread. Such education should be aimed at people whose behaviour places them at risk of acquiring HIV infection. As sexual behaviour is private and much risk behaviour is disapproved of in the community, education must be provided for the entire population so as to reach all those at risk. Educational programmes should provide information that helps people to understand the implications of HIV infection and so motivate them to modify or eliminate their risk of HIV infection.

Maternal and child health and family planning (MCH/FP) programmes are in a unique position to assist in stopping the spread of AIDS. The largest pool of health personnel most able potentially to work for the containment of AIDS is that working in MCH/FP programmes (80% of women with AIDS are of reproductive age). There is long experience within MCH/FP programmes in dealing with such matters as sexuality, counselling, methods of contraception, care during pregnancy and childbirth and breast-feeding, all of which are closely related to the prevention of HIV transmission.

The traditional work of MCH/FP programmes and service providers is vitally important in its own right and must continue to be strengthened.

However, fulfilling an appropriate additional role in AIDS prevention will entail the expansion of MCH/FP services to include information, education and counselling on a variety of sexuality, fertility and relationship issues. Education on safer sex in terms of sexually transmitted disease (STD) will have to be added to education on safer sex in terms of contraception. Routine infection control procedures will need to be strengthened, as will information, education and communication programmes aimed at changing knowledge, attitudes and behaviour in regard to sexual practices.

These guidelines have been developed by the Division of Family Health, Programme of Maternal and Child Health including Family Planning and the Global Programme on AIDS of the World Health Organization (WHO) working in close collaboration with the United Nations Population Fund (UNFPA). They are addressed primarily to medical professionals in supervisory, managerial or administrative positions dealing with MCH/FP and AIDS programmes, especially in developing countries. A companion volume on AIDS and family planning is also available, and eventually these two sets of guidelines will be combined into a single WHO publication.

The main objectives of these guidelines are to provide a review of the latest information about the human immunodeficiency virus (HIV) and the acquired immunodeficiency syndrome (AIDS) as they relate to MCH/FP activities and to suggest how this information might be used to improve services and care.

The first four chapters cover facts about HIV infection that all maternal and child health staff should know, strategies of HIV prevention for women during pregnancy, recommendations to prevent HIV transmission in the labour and delivery ward, and diagnosis and care of HIV-positive newborn infants. The fifth chapter reviews HIV prevention in women as it relates to men, condoms, family planning and adolescents, while the sixth chapter discusses problems with logistics and supplies, and possible solutions, especially in reference to condoms and gloves. The final two chapters explain how to train maternal and child health (MCH) staff and others in the use of these guidelines and how to evaluate the implementation of these guidelines.

After reviewing these guidelines, MCH/FP service providers and those who rely on them for advice will be able to provide better maternal and child care.

Comments and queries should be addressed to the Programme of Maternal and Child Health including Family Planning and/or the Global Programme on AIDS, World Health Organization, 1211 Geneva 27, Switzerland.

Acknowledgements

The World Health Organization acknowledges the important contributions of Dr Tedd Ellerbrock of the Division of HIV/AIDS and Ms Jeanne McDermott of the Division of Reproductive Health, Centers for Disease Control, Atlanta, Georgia, USA; and Sister Patricia McGraw and Dr Benjamin Nkowane, University Teaching Hospital, Lusaka, Zambia, in drafting this document.

The World Health Organization also wishes to thank all the members of the review consultation who helped to finalize the document: Dr Gazanfer Aksakoglu, Department of Community Medicine, Dokuz Eylul University, Izmir, Turkey; Ms Rosemary Chinyama, TBA Programme Coordinator, Ministry of Health, Lilongwe, Malawi; Dr Supawat Chutivongse, Thai Red Cross Society, Bangkok, Thailand; Dr Elizabeth Connell, Emory University, Atlanta, Georgia, USA; Ms Suzanne Fenn, Family Life Association, Manzini, Swaziland; Dr Douglas Huber, International Association for Voluntary Surgical Contraception, New York, USA; Ms Florence Kidha, IPPF Regional Bureau, Nairobi, Kenya; Dr Chisale Mhango, Mauritius Institute of Health, Port Louis, Mauritius; Dr Prema Ramachandran, Indian Council of Medical Research, New Delhi, India; and Dr Roger Short, Department of Physiology, Monash University, Clayton, Victoria, Australia.

The financial support provided by UNFPA towards the preparation and publication of the document is gratefully acknowledged.

CHAPTER 1

The Facts about HIV Infection and AIDS

1.1 What are HIV and AIDS?

Human immunodeficiency virus (HIV) is the causative agent of acquired immunodeficiency syndrome (AIDS). HIV preferentially infects lymphocytes and monocytes. By destroying these cells, HIV infection can lead to progressive impairment of the immune system, making an individual susceptible to infections, such as tuberculosis and candidiasis, and cancers, such as Kaposi's sarcoma. In addition, HIV infects cells of the central nervous system ultimately causing neurological disturbances. An HIV-infected person with one or a combination of several specific infections, cancers, dementia or wasting syndrome is diagnosed as having AIDS.

AIDS represents the late stage of HIV infection. Most people infected with HIV are asymptomatic for long periods of time and may not know that they are infected. However, they can transmit the virus to others by sexual intercourse or donating semen; by donating blood, organs or tissues; by sharing contaminated needles or syringes, as well as during pregnancy or delivery by mother-to-fetus/infant transmission. Persons with HIV infection are presumed to be infectious for life and since there is presently no cure, most of them, if not all, will eventually develop AIDS.

Clinical signs and symptoms of HIV infection are caused by diseases that occur because of impairment of the immune system and by the virus itself. A few weeks after the initial infection, some people may experience symptoms such as fever, enlarged lymph glands, skin rash and cough. These symptoms, when they

are present, develop at about the time antibodies produced by the body against HIV can first be detected. An asymptomatic period that lasts a few months to many years follows the initial response to infection. Why some people remain without symptoms longer than others is not well understood. However, during this asymptomatic period HIV usually causes progressive deterioration of the immune system until the person eventually develops signs and symptoms of wasting syndrome, opportunistic infections and cancers and the diagnosis of AIDS is made. HIV infection can be confirmed only with a blood test, and the diagnosis of AIDS requires a comprehensive clinical assessment. The fatality rate for AIDS, within 2-5 years of diagnosis, is very high – close to 100%.

1.2 How many women and children are infected with HIV and how many of these have AIDS?

Reports to the World Health Organization (WHO) suggest that by late 1990 at least eight million people had become infected with HIV throughout the world, of whom over three million are women. Over 80 per cent of these HIV-infected women live in developing countries. These estimates are especially important because most cases of HIV infection and AIDS in children are the result of mother-to-fetus/infant transmission. Approximately 700,000 HIV-infected births may have already occurred, which will significantly increase the mortality rates in children under five in some areas. By the end of the 1990s, WHO estimates that 10 million or more infants and children will have been infected by HIV.

Several distinct patterns of HIV infection and AIDS are apparent worldwide. Each of these patterns has important implications for women and children. Pattern-I is typical of industrialized countries with large numbers of reported cases. These include the industrialized countries of North America, Western Europe, Australia and New Zealand. In pattern-I countries, transmission of HIV as reflected by AIDS cases has occurred mainly between homosexual or bisexual males and urban intravenous drug users. Heterosexual transmission is responsible for a small percentage of cases but is increasing. The reported ratio of infected males to females ranges from 10-15 to one. Because relatively few women are infected in these areas, mother-to-fetus/infant transmission is not common, but is increasing.

Pattern-II is presently observed in the countries of sub-Saharan Africa. In contrast to pattern-I areas, most AIDS cases in pattern-II areas have occurred in heterosexuals and the ratio of infected males to females is approximately one to

one. Transmission through homosexual activity or intravenous drug use occurs only rarely. However, since many women of reproductive age are infected, mother-to-fetus/infant transmission is common.

Countries in the Caribbean and Latin America are now classified as pattern-I/II. Extensive spread of HIV probably began in the early 1980s, initially amongst homosexual males and intravenous drug users. However, during the latter half of the 1980s, heterosexual transmission of HIV increased to become a major, if not the major, mode of spread.

Pattern-III prevails in areas of Eastern Europe, North Africa, the Middle East, Asia and most of the Pacific. To date less than 1% of all AIDS cases reported to the WHO have come from pattern-III countries. The reported cases can be traced to high-risk behaviour, such as intravenous drug use and homosexual and heterosexual contact with infected persons; use of contaminated blood; and reuse of unsterile injection equipment. Extensive spread of HIV is now being documented in several countries in South-East Asia, but the prevalence of HIV in most pattern-III countries remains relatively low.

1.3 What should MCH/FP service providers know about HIV transmission?

Epidemiological studies throughout the world have shown only three modes of HIV transmission, described below.

- (1) Through sexual intercourse (from an infected person to his or her sexual partner – man to woman, woman to man, man to man, and woman to woman) or donated semen. In these guidelines, sexual intercourse refers to penetrative penile-vaginal, penile-anal, or oral-genital contact.
- (2) From exposure to blood, blood products, or transplanted organs or tissues. Exposure to HIV-infected blood may occur as a result of the transfusion of unscreened blood, the reuse of contaminated syringes and needles, e.g., by intravenous drug users, or in other settings.
- (3) From an infected mother to her fetus or infant, before, during or shortly after birth (perinatal transmission).

Numerous studies suggest that casual contact, such as, touching, hugging and kissing, with someone who is infected with HIV or has AIDS does not result in HIV transmission. However, HIV can be transmitted by penetrative sexual contact between men, from men to women, from women to men and possibly from women to women, if one of the partners is infected and the other is not. Penetrative sexual contact includes vaginal, anal and oral intercourse, but the risk

of transmission from oral-genital sex is apparently low. Although no transmission from deep, wet (open-mouth) kissing has been documented, such kissing might transmit HIV through direct exposure of oral mucous membranes, especially if they have lesions, to infected blood or saliva.

Any single sexual contact between an infected and an uninfected individual may lead to HIV transmission. Some factors may also increase the risk of transmission during sexual contact. Current evidence suggests that genital ulcerative diseases, such as, syphilis, chancroid and herpes simplex, may facilitate the transmission of HIV infection to susceptible persons. In some areas, such as central Africa, prostitutes and other women who exchange sex for money or goods are at high risk and can be a major source of HIV infection. Finally, artificial insemination with HIV-infected semen has also resulted in HIV transmission.

Transfused infected blood, blood components or blood products have accounted for HIV transmission in recipients. HIV transmission also occurs between injecting drug users when they share needles and syringes that are contaminated with infected blood. Similarly, it has been shown that HIV transmission can occur in hospitals or clinics, if patients are treated with needles, syringes or surgical instruments that are contaminated with infected blood. Fortunately, strict adherence to routine sterile techniques can prevent this type of transmission.

Parenteral exposure to blood has resulted in a small but definite occupational risk of HIV infection for health care workers. In most of the cases reported, workers were infected during a needlestick injury, when, for example, a needle was stuck into a finger while recapping. However, studies suggest that less than 1.0% of health care workers with needlestick injuries associated with contaminated blood become infected with HIV. So far, five health care workers have also been reported to have been infected through non-needlestick exposures to blood of infected patients; most had skin lesions that may have been contaminated with blood. Although HIV has been identified in other body fluids of infected people, only blood, semen, vaginal fluids and breast milk have been implicated in transmission. However, the risk of transmission via breast milk appears to be low.

Although mother-to-fetus/infant transmission of HIV is well documented, questions about the timing of transmission in relationship to birth and factors that increase the risk of transmission are not well defined. Evidence suggests that HIV transmission could occur during pregnancy or delivery. In addition, HIV has been cultured from infected breast milk, suggesting that breast-feeding could be a route of HIV transmission. Mother-to-fetus/infant transmission and breast-feeding are discussed in more detail in sections 1.5 and 1.7.

1.4 How can women prevent the transmission of HIV?

HIV transmission is the result of specific behaviours; avoiding these behaviours will prevent HIV transmission. Since most infected persons have no signs or symptoms of disease, it is not possible to distinguish between those who are infected and those who are not without a laboratory test for HIV infection. The following behaviours place women at significant risk of HIV infection:

- (a) vaginal, anal or oral sexual intercourse with an infected man;
- (b) using or sharing a needle or syringe which may be contaminated with HIV-infected blood, as in intravenous drug use or traditional medical practice;
- (c) sexual intercourse with a man who is at high risk of HIV infection because he:
 - has sexual intercourse with women who are infected or at high risk of infection
 - has a sexually transmitted disease
 - exchanges money, goods or drugs for sex with women
 - has many other female sexual partners
 - uses or shares contaminated needles or syringes
 - has sexual intercourse with other men.

Sexual transmission of HIV is avoided if infected persons do not have vaginal, anal or oral intercourse with uninfected persons. There is no risk of sexual transmission for those who practise sexual abstinence, or are in mutually faithful relationships with partners who are not infected, unless one partner becomes infected by another route. Apart from these two situations, individuals who have sexual relations place themselves and/or their partners at risk of infection. However, to a varying extent in different situations, women may be able to decrease the extent of that risk by first, limiting the number of sexual partners; second, selecting sexual partners at low or no risk of infection; and third, practising “protective sex”, which will significantly reduce the risks of HIV transmission even if one partner is infected.

Protective sex is the term used to denote sexual activity where no semen, vaginal fluid or blood is exchanged between partners. It can involve practices, such as, kissing (if no oral lesions are present), hugging and caressing, and genital manipulation (if no skin lesions exist). In all other instances, the routine correct use of a condom is strongly recommended. Condom use is recommended because condoms are effective barriers to viruses, including HIV. However,

condoms are not 100% effective. To maximize effectiveness, condoms must be used correctly and consistently with all sexual partners. Spermicidal compounds such as nonoxynol-9 have been shown to inactivate HIV in laboratory tests. However, epidemiological studies suggest that their use may not be beneficial because nonoxynol-9 may produce adverse reactions which can lead to the development of genital lesions. At the present time there is no justification for recommending the use of any spermicides or virucides for prevention of HIV transmission either in conjunction with condoms or alone.

Infection from donated blood and blood products could be prevented if donations from infected persons could be identified and discarded before administration. For this reason, individuals practising high-risk behaviour should be discouraged from donating blood. More importantly, all blood used for transfusion or for the preparation of blood products, such as *rhesus* immunoglobulins, should be screened for HIV.

Transmission associated with contaminated needles and syringes could be avoided if unsterilized injection equipment were not shared among individuals. The best message for intravenous drug users is stop using drugs. If this is not possible, they should at least be encouraged to eliminate the sharing of unsterile needles and syringes. However, for some addicted drug users, this is difficult or impossible, and other options, such as disinfection with readily available agents, such as bleach, should be advocated. In health care settings, strict adherence to routine sterile techniques can prevent this type of transmission.

Preventing HIV infection in women of reproductive age and making voluntary contraception available to HIV-infected women are the two most important means of preventing mother-to-fetus/infant transmission. HIV-infected pregnant women who voluntarily decide to terminate their pregnancy in countries where this option is legal and safe will also avoid mother-to-fetus/infant transmission. In order for women to make such choices, they need to know their HIV status. In areas where the prevalence of HIV is low in women of reproductive age, women who have engaged in high-risk behaviour should be counselled and offered testing. However, in areas where the prevalence of HIV is high, consideration should be given to making available confidential voluntary testing to all women of childbearing age, preferably prior to pregnancy.

1.5 What is known about mother-to-fetus/infant transmission?

Most children infected with HIV, including those with AIDS, have been infected by mother-to-fetus/infant transmission. Such transmission can occur during pregnancy, at delivery or during the postpartum period. Detection of HIV

in fetal tissue supports the hypothesis that infection can occur *in utero*. Because HIV, like hepatitis B, occurs in blood and body fluids, HIV transmission could possibly occur during birth through exposure to infected maternal blood or vaginal secretions. In addition, a few well-documented cases of HIV transmission through breast-feeding have been reported in the medical literature (see section 1.7).

It is difficult to determine whether or not a newborn infant is infected. HIV antibody tests are highly sensitive and specific for adults and older children; from the presence of antibody in these individuals, the presence of HIV can be reliably inferred. However, in HIV-infected women, the maternal HIV antibody is passively transmitted across the placenta to the fetus during pregnancy. This antibody persists in the infant postnatally for as long as 18 months. Consequently, during this period, the detection of HIV antibody in infants does not necessarily mean that the infants are infected. The inability to make a diagnosis of HIV infection in some infants prior to 18 months of life creates numerous problems, and complicates the task of determining the rate of perinatal HIV transmission in different groups of women.

Recent studies have suggested that the transmission rate of HIV infection from mother-to-fetus/infant during pregnancy and at the time of delivery is probably between 20% and 45%. However, most of the HIV-infected women in these studies were asymptomatic. The occurrence of symptomatic infection in mothers probably means a much greater risk of HIV transmission to the fetus/infant. Research is currently going on to determine the various factors that influence the rate of mother-to-fetus/infant transmission. Finally, although earlier studies suggested that caesarean section may reduce mother-to-fetus/infant transmission, current evidence indicates that this is not so.

1.6 Does HIV infection affect pregnancy or vice versa?

Recent studies have examined the effect HIV infection has on the complications and outcomes of pregnancy, and the effect pregnancy has on the clinical course of HIV infection. The results of these studies are preliminary and inconclusive. However, present evidence suggests that early in HIV infection, when women are asymptomatic, pregnancy has little, if any, effect on the clinical course of HIV infection and similarly HIV infection probably has little, if any, effect on the complications and outcomes of pregnancy. This may not be the case later in HIV infection, especially when women have severe immunodeficiency and/or AIDS. The pregnancies in women with AIDS are often complicated, especially by premature labour, as might be expected in seriously ill or debilitated women.

1.7 Why does WHO continue to recommend breast-feeding for most HIV-infected mothers?

The number of reported cases of HIV transmission by breast-feeding remains small, but they are well-documented and provide clinical histories consistent with HIV infection acquired shortly after birth. For instance, in some of these cases, HIV-negative women were transfused postpartum with HIV-infected blood. Subsequently, they infected their infants through breast-feeding. Moreover, several studies have demonstrated the presence of HIV in the breast milk of infected women.

Although HIV transmission by breast-feeding occurs, the relative contribution of this route to the total number of HIV-infected cases in children is probably very small, compared with *in utero* and intrapartum transmission. This risk must be weighed against the well-recognized immunological, nutritional, psychological and child-spacing benefits of breast milk and breast-feeding. Breast milk is also important in preventing intercurrent infections which could accelerate progression of HIV-related disease in already infected infants. Unlike the cases described above, the more common situation facing health workers is the infant born to a mother who has been infected throughout pregnancy and delivery; the additional risk of such an infant acquiring HIV infection via breast-feeding, if any, is low.

MCH/FP service providers should remember the following facts about breast-feeding and HIV infection. The rate of transmission of HIV through breast-feeding is low. In many situations, the risks of not breast-feeding far outweigh the risk of HIV transmission. Thus, particularly in situations where the safe and effective use of alternatives is not possible, breast-feeding by the biological mother should continue to be the feeding method of choice, irrespective of her HIV infection status.

1.8 What effect will the HIV epidemic have on MCH/FP service providers?

The HIV epidemic will affect MCH/FP service providers in at least two different ways: personally and professionally. Everyone is involved personally in the epidemic. Their principal concern should be to prevent HIV infection in themselves and in members of their families. This is best done by avoiding high-risk behaviour (see section 1.4).

One of the main professional tasks of MCH/FP service providers will be to keep abreast of new information about HIV infection and AIDS, for example

by reading booklets such as this. In addition, they will need to convey this knowledge about HIV to others in such a way that they will prevent infection in themselves. Occasionally this will be difficult, because it will sometimes mean having to repeat the same messages many times, particularly to those who need to know but do not seem to take note. Furthermore, MCH/FP service providers will need to show concern and provide care for those who are infected, especially immediately after they have learned of their infection and later, when they develop symptoms.

Some MCH/FP service providers will be concerned primarily about the occupational risk of HIV infection. As explained above (see section 1.3), accidental parenteral exposure to blood can result in a small but definite occupational risk of HIV infection for health care workers. However, the consistent use of routine precautions and sterile procedures (see chapter 3), can eliminate even this small risk of infection. In areas of high prevalence and in situations where supplies are not always available for routine precautions and sterile procedures, the risk of HIV transmission to midwives during procedures such as delivery may be significant. The precise level of this risk is currently the subject of research supported by WHO.

1.9 Why is confidentiality of HIV test results so important?

Since HIV infection and AIDS are sensitive and emotionally charged issues in many societies, individuals who are tested for HIV will need to be assured of the confidentiality of their results if their cooperation is to be obtained.

HIV spreads almost entirely through specific, individual behaviours. In most instances, two persons are involved; a change in behaviour of either the HIV-infected or the uninfected person will be sufficient to prevent HIV transmission. However, the behaviours concerned, such as, sexual intercourse and intravenous drug use, are private, secret or illegal in many societies.

For these reasons, the two most important factors in HIV prevention are education and information. HIV transmission can be prevented through informed and responsible behaviour (ill-informed or irresponsible behaviour will put both the individual and a responsible partner at risk). To prevent HIV infection effectively, persons whose behaviours place them at increased risk of exposure to HIV must be counselled and offered HIV testing. Persons infected with HIV should remain integrated in society and be helped to assume responsibility for preventing HIV transmission to others.

Transmission of HIV infection can be reduced through programmes of counselling and testing for HIV which are directed at behaviour change.

However, the extent to which these programmes are successful depends on the level of participation. The ability of MCH/FP service providers to assure confidentiality of patient information and the public's confidence in that ability are crucial. The prevention of HIV transmission ultimately relies on the responsibility of individuals not to put themselves or others at risk of HIV infection. This cannot be achieved in a situation where lack of confidentiality may expose individuals to stigmatization and discrimination.

1.10 Does scarification or female circumcision increase the risk of HIV transmission?

Scarification is the practice of deliberately cutting the skin with a sharp instrument to produce a scar for beautification or ritual purposes. This practice occurs in a number of societies and is performed at different ages during childhood, with puberty being especially important. Keloid formation is often a desired result, and markings from scarification vary by culture and geographical area. At present, little is known about the role of scarification in the transmission of HIV. However, the possibility of transmission exists because scarification can involve the use of shared instruments that could transmit blood. To avoid transmission of HIV and other infectious agents during scarification, cutting instruments, such as razor blades and needles, should be new, or boiled or heated in a flame until red hot and then cooled, prior to each use.

Female circumcision is a general term used to describe the traditional practice of surgically excising all or portions of the female external genitalia for ritual purposes. The amount of tissue excised during female circumcision varies from only the clitoral prepuce to the mons veneris, labia majora and minora and clitoris. In addition, wound repair may involve the insertion of foreign objects, such as, thorns or matchsticks, and partial or complete closure of the vaginal orifice. Female circumcision occurs in a number of societies and should be strongly discouraged because of its totally adverse health consequences. Although there is no current evidence to suggest that this practice is associated with HIV transmission, it might increase the risk of HIV transmission in one of several ways. The instrument used for excision could be contaminated with infected blood. In addition, the resulting small introitus, the presence of friable scar tissue and abnormal anatomy of the vagina may cause tears during sexual intercourse, which may increase the risk of HIV transmission to a woman, if her male sex partner is infected. Bleeding from these tears may increase the risk for a man, if the woman is infected. Moreover, because women who have been circumcised may bleed significantly from the scar tissue following delivery, they may be more

likely to require blood transfusions postpartum, increasing the risk of transmission from contaminated blood, in situations where HIV screening of donated blood is not yet institutionalised.

1.11 What is known about the new AIDS virus, HIV-2?

Human immunodeficiency virus (HIV) was first isolated and identified as the cause of AIDS in 1984. In 1986, a second virus, similar to HIV, was also found to cause AIDS. To avoid confusion, the original virus was named HIV-1 and the new virus, HIV-2.

Except in West Africa, where HIV-2 is relatively common, almost all of the cases of AIDS in the world have been caused by HIV-1. Also, most of the knowledge about AIDS has been obtained by studying patients infected by HIV-1. Consequently, in most countries, when people refer to the AIDS virus, they usually mean HIV-1.

Since HIV-2 was found only a few years ago, relatively little is known about it. However, HIV-2 infection seems generally to cause the same clinical signs and symptoms as HIV-1 infection, including AIDS. In addition, two other important similarities have been found: HIV-2 is transmitted by the same routes as HIV-1, and HIV-2 has a very similar genetic structure to that of HIV-1. Furthermore, at least a few cases of HIV-2 have already been diagnosed in a number of countries outside West Africa and, like HIV-1, HIV-2 may spread to still others. However, HIV-2 and its effects may not be exactly the same as HIV-1. For example, it appears that HIV-2 may not be transmitted as often as HIV-1 from mother to child, and persons infected with HIV-2 may not progress to AIDS as rapidly as those infected with HIV-1.

Although HIV-2 is still limited to certain geographical areas and has caused relatively few cases of AIDS, it could spread throughout the world in the near future and possibly cause large numbers of AIDS cases. For this reason, health-care professionals should be aware that HIV-2 exists and try to keep abreast of the latest information about it. However, since current information about HIV-2 suggests that, at least clinically, it is similar to HIV-1, in this text both viruses will be referred to as human immunodeficiency virus (HIV) and these guidelines should be followed for both viruses.

CHAPTER 2

Pregnancy and HIV Infection

2.1 Strategies of prevention for women during pregnancy

Pregnancy provides a unique opportunity for the implementation of HIV prevention strategies in women. HIV infection and AIDS in women occur primarily during their reproductive years. During this period, approximately 85% of women will become pregnant and many will receive prenatal care or care at the time of delivery from MCH/FP service providers. Strategies will depend largely upon local circumstances, however, the following guidelines may help in developing HIV prevention programmes for women during pregnancy.

To avoid HIV infection, women should not have sexual intercourse with an infected man, or use, or be injected with, a needle or syringe that may be contaminated with HIV. This preventive message is often difficult to put into practice because most people who are infected do not know it and some who know they are infected do not inform others. As a result, the only people who are not at risk are those who (1) practise sexual abstinence or are mutually faithful in their relationships (see section 1.4) among partners who are not infected; and (2) do not share injection equipment, as in intravenous drug use. Thus preventive strategies should emphasize recommendations that provide practical ways to substantially reduce risk, even if they do not eliminate it entirely. Ten recommendations for reducing the risk of HIV transmission in women are listed below.

How you can avoid HIV infection

- (1) Always insist on the use of a fresh, new latex condom during sexual intercourse with a partner who is not well known to you. Always insist on the use of condoms if you think your partner has other sex partners.
- (2) Reduce the number of your sex partners to minimize the risk of exposure.
- (3) Try to know about any HIV risk behaviours in your sex partner, and if in doubt, always insist on the use of condoms during sexual intercourse.
- (4) Do not share needles or syringes for intravenous drug use. If needles or syringes have to be shared, clean them beforehand with bleach and water.
- (5) Do not accept the use of skin-piercing instruments, including needles and syringes, that are not properly sterilized.

How you can avoid transmitting HIV infection

- (6) If you or your sex partner are infected, insist on the use of a fresh, new latex condom both continuously throughout sexual intercourse and consistently each time you have sexual intercourse.
- (7) If you are infected with HIV or have engaged in high-risk behaviour, do not donate blood.
- (8) If you are infected with HIV, consider avoiding pregnancy or limiting the number of your pregnancies. If you choose to become pregnant, consider that the risk of transmitting HIV to your fetus/infant probably increases as you progress to symptomatic AIDS.
- (9) If you or your sex partner contract a sexually transmitted disease (STD), both of you should seek treatment for the STD and consider being tested for HIV.
- (10) You should breast-feed, unless you know that you became infected with HIV late in pregnancy or during lactation, or you have clinical AIDS. In such cases you should consider alternatives to breast milk, but only if these can be safely used and are available and affordable. Breast-feeding will thus continue to be the feeding method of choice for most women.

MCH/FP care providers have two principal tasks to accomplish in this strategy of prevention: to teach women how to reduce the risk of infection and to motivate them to use this information effectively. However, to successfully prevent HIV transmission, men also need to be educated about the impact of HIV infection on their families and strategies for prevention (see sections 5.1 and 5.2).

2.2 Strategies to reduce the need for blood transfusion at the time of delivery

In some areas, transfusions with blood infected with HIV are a serious source of infection. Blood supplies should be protected from HIV infection by discouraging those who have engaged in high-risk behaviour from donating blood and by testing each unit of blood for HIV before it is transfused. However, the resources to implement these preventive measures are not always available.

Blood that has not been obtained from appropriately selected donors and/or that has not been appropriately screened for infectious agents should not be transfused, other than in the most exceptional life-threatening situations. Consequently, in areas where blood for transfusions may be infected with HIV, strategies to reduce the need for blood transfusions at the time of delivery are especially important to reduce the risk of HIV infection in women.

The need for blood transfusions can be reduced by increasing the iron stores of pregnant women, so that blood loss at delivery is better tolerated. Iron stores can be increased in pregnancy in the following ways:

- by using oral iron supplements, folic acid and foods with high iron content, such as, green, leafy vegetables;
- by prescribing injectable iron for women with severe anaemia;
- by using antimalarials for chemoprophylaxis; and
- by diagnosing and treating, as early as possible, anaemia and diseases which cause anaemia, such as, malaria, hookworm and other parasitic diseases.

The need for blood transfusions can also be reduced at the time of delivery. Well-timed episiotomy when indicated, active management of the third stage of labour and prompt repair of lacerations and episiotomies can reduce blood loss. In addition, to reduce the risk of HIV infection from blood transfusion, acute blood loss should be managed through the use of normal saline and plasma expanders rather than packed red blood cells or whole blood. In most cases, replacement of blood volume rather than replacement of red blood cells is needed, and plasma expanders are safer, less expensive and can be transfused faster. Finally, only women who have both a low hemoglobin level and symptoms of acute blood loss or severe anaemia should be transfused.

2.3 HIV counselling for pregnant women

Counselling is a process that can help people to understand and deal with their problems better, to communicate better with those they love and care about, and to deal with fear and anxiety. It can provide support at times of crisis and reinforce motivation to change behaviour. Counselling helps people to acknowledge their problems and accept, reduce or solve them.

HIV counselling should be an integral part of health care programmes for HIV prevention and control. HIV counselling has two objectives: to prevent HIV infection and transmission and to provide support for those already infected. To achieve these objectives, HIV testing is often offered at the time of the first HIV counselling session. Ideally, women should learn about HIV infection and AIDS and have the opportunity to be tested for HIV infection prior to pregnancy (see section 1.5). However, prenatal care provides an opportunity to offer HIV counselling and testing for those who have not had it.

To be effective, HIV counselling must have several essential elements. The counsellor must have a caring attitude and must be able to communicate information about HIV in an accurate, consistent and objective manner. A counsellor with a caring attitude gains the trust of people who need help, listens sympathetically, understands and accepts other people's feelings and helps them to reduce or resolve their problems. A counsellor with these skills usually listens more often than talks and does not interrupt. In addition, HIV counselling requires privacy and adequate time. Without privacy, people are often unwilling to discuss their feelings, especially if they are afraid, anxious or distressed. Since counselling should be individualized, the time needed to counsel different people will vary.

In this section, only pre-test and post-test HIV counselling for pregnant women will be discussed. However, much of the discussion also applies to men and other women who seek HIV counselling. Since local circumstances usually dictate who and how many women will be counselled and tested, and since these issues are discussed in subsequent sections (see sections 2.4 and 2.5), they will not be reviewed here.

Prenatal care offers an opportunity for HIV counselling and testing for women of reproductive age. If HIV testing is not available, HIV counselling should still be provided for women at risk of infection. Counselling prior to HIV testing is referred to as pre-test counselling. The purpose of pre-test counselling is to determine the person's need and desire to be tested and to provide information and advice, so that the person can make an informed decision whether or not to have the test. During pre-test counselling, the counsellor should also

assess the woman's capability of dealing with the test results, if positive, and how important the test results may be for motivating behavioural change, regardless of the result.

Pre-test counselling should:

- (1) determine what she UNDERSTANDS about HIV and AIDS;
- (2) provide factual INFORMATION as needed;
- (3) discuss potential IMPLICATIONS of a positive and negative test result;
- (4) explain and obtain INFORMED CONSENT;
- (5) review the TEST PROCEDURE;
- (6) assess her ABILITY TO COPE with a positive result; and
- (7) establish a RELATIONSHIP as a basis for post-test counselling.

A decision to be tested should be an informed decision. Informed consent implies awareness of all the possible implications of a test result. Since policies for informed consent vary for different areas, counsellors should have a clear understanding of the local policy. A review of the test procedure should include an explanation of when and how the person can obtain the test result and a discussion of how confidentiality is assured.

Counselling after HIV testing is referred to as post-test counselling. The type of post-test counselling will depend on the HIV test result. Post-test counselling after a negative test result should include an explanation of what this result means. A negative test indicates that the person is probably not infected now. However, infection precedes the development of detectable antibody. This "window" period between the time of infection and the time blood begins to test positive ranges, for the majority of infected persons, from six weeks to six months. Consequently, a negative result during this window period does not mean the individual is necessarily uninfected, nor does it imply protection against infection in the future. If a woman is at high risk for HIV infection, repeat testing in about three months may be indicated and recommended. In any event, she should be counselled about the need for behavioural change including the use of condoms.

After a positive test result, post-test counselling should:

- (1) ensure that she UNDERSTANDS what a positive HIV test result means,
- (2) discuss how she FEELS about being infected,
- (3) provide SUPPORT to help her deal with these feelings,
- (4) discuss her PLANS for the immediate future,

- (5) establish a **RELATIONSHIP** with her as a basis for future counselling,
- (6) **SCHEDULE** appointments for medical evaluation and follow up counselling,
- (7) **COUNSEL** her partner(s), if possible, and
- (8) **REFER** her to local community services, if available.

A counsellor with a caring attitude is especially important for post-test counselling after a positive test result. In addition, privacy, confidentiality and adequate time are essential. The explanation of what a positive test result means must be clear to the patient. Some reactions may be very intense - such responses are a normal reaction to life-threatening news and should be anticipated. The person may benefit from a discussion about what she plans to do immediately after the counselling session, especially whom she plans to tell about her infection. However, under these circumstances adequate counselling may be difficult or impossible. Therefore, a follow up counselling session should be scheduled for a week to 10 days later, when additional emotional support can be given along with intensive counselling about the need to prevent HIV transmission. An appointment for medical evaluation should also be made, unless this is provided in the prenatal clinic. In addition, referrals to local community services may provide the additional assistance and support that is needed. Finally, attempts should be made to trace HIV-infected persons who do not return for their results.

2.4 Testing/screening pregnant women for HIV

Unlinked, Anonymous Screening

Unlinked, anonymous screening can be used to determine the prevalence of HIV infection in a population. In this context, unlinked means that a test result cannot be traced back to the patient who provided the blood specimen and anonymous means that no record is kept of the patients who provided blood specimens for the sample. Another requirement for this type of testing is that the blood sample should not be drawn specifically for HIV antibody testing but rather left over from a sample that was taken for other testing purposes (eg., haemoglobin, blood sugar, syphilis, etc.). The advantage of unlinked, anonymous testing is that informed consent and counselling are not needed and confidentiality is assured. Results from such testing can be used to determine the prevalence of HIV infection in prenatal patients. Furthermore, trends in the prevalence of HIV infection can be determined by testing repeated samples over time.

Universal routine screening of pregnant women

Where HIV seroprevalence amongst pregnant women is found to be high, the possibility of universal, routine screening of women attending prenatal clinics may be raised. The success of screening women for gonorrhoea, syphilis and cervical dysplasia suggests that HIV screening could also be carried out in prenatal clinics. However, HIV has some important differences from these other diseases, which make it imperative that any linked testing should always be done with the full knowledge and consent of the person being tested.

At present there is no well-established, effective treatment for HIV. Testing for HIV is not simple. The most common method, the enzyme-linked immunosorbent assay (ELISA), requires at least one confirmatory test, such as the Western Blot, which is relatively expensive, far more complicated and often not available. In addition, the WHO recommends that the following questions and issues be addressed prior to planning and implementing HIV screening programmes:

- (1) What is the rationale for the proposed programme?
- (2) What population is to be screened?
- (3) What test method is to be used?
- (4) Where is the laboratory testing to be done?
- (5) What is the intended disposition of data obtained from testing?
- (6) What plan will be used for communicating results to the person tested?
- (7) How is counselling to be accomplished?
- (8) What is the social impact of screening?
- (9) What legal and ethical considerations are raised by the proposed screening programme?

Perhaps, after carefully addressing these questions, the universal, routine screening of women attending prenatal clinics will not be recommended in most areas at the present time. However, the possibility of screening women during prenatal care should be reviewed periodically as more is learned about this disease and as new tests and therapies are developed. In most situations it will be possible to identify women at higher risk of HIV infection to whom counselling and voluntary confidential testing should be offered.

HIV testing in pregnancy

At their first prenatal visit, women should be asked about high-risk behaviour for HIV infection in both themselves and their partners. Those who have engaged in high-risk behaviour should be counselled and offered testing. If

they have not been tested during the prenatal period, they could be offered testing at the time of delivery. Women who develop HIV-related signs and symptoms during pregnancy should also be offered counselling and testing for infection. These symptoms may include one or more of the following:

- unexplained weight loss
- chronic diarrhoea
- intermittent or persistent fever
- persistent cough
- generalized lymphadenopathy
- oro-pharyngeal candidiasis
- night sweats
- unexplained psychiatric or neurological symptoms
- fatigue
- generalized dermatitis

In addition, pregnant women who contract a sexually transmitted disease, develop Kaposi's sarcoma or have a sexual partner who is HIV-infected should be offered counselling and testing for HIV, if available.

Women who are pregnant and may be infected with HIV should be offered testing to improve both treatment and prevention. Knowledge of HIV infection may influence a woman's decision to practise family planning. If a woman learns early in pregnancy that she is HIV-positive and she can obtain a safe and legal abortion, she may choose to terminate her pregnancy. In countries where termination of pregnancy is both legal and safe, women should be offered counselling in order to make a free, informed and voluntary decision regarding this option.

Because resources for HIV counselling and testing are particularly limited in some areas, all women at risk for infection probably cannot be tested for HIV. In addition, some women are at greater risk of HIV infection than others and should be given priority in counselling and testing programmes. The following list has been prepared to guide MCH/FP service providers in this task. Women should be counselled and offered testing for HIV if:

- (1) symptoms are present suggestive of HIV infection;
- (2) they have a history of intravenous (IV) drug use;
- (3) their sexual partner is HIV infected or has AIDS;
- (4) they have a child who develops HIV-related symptoms or AIDS;

- (5) they have a history or presence of a sexually transmitted disease (STD), especially one with genital ulceration;
- (6) they have a history of exchanging sex for money, goods, drugs or other favours
- (7) they have a history of unprotected sex with multiple partners outside mutually faithful relationships;
- (8) they have a history of transfusion with blood that may have been contaminated with HIV;
- (9) their sexual partner is an intravenous drug user
- (10) their sexual partner is a bisexual man.

2.5 Prenatal care for HIV-infected women

If a woman learns during pregnancy that she is infected with HIV, the first task of those providing prenatal care is to offer her emotional support; learning of HIV infection during pregnancy can be an overwhelming experience. In addition, adequate counselling should be provided, so that she can make informed choices regarding continuation of the pregnancy, modifying her behaviour to prevent transmission to others and prevention of subsequent pregnancies.

In these patients, nonspecific symptoms that would usually be attributed to pregnancy should be followed closely, so that therapy can be initiated early, if necessary. For example, fatigue and weight loss sometimes occur in early pregnancy, but may be symptoms of HIV infection. For this reason, HIV-infected women should probably be seen more often and encouraged to report all symptoms. The type of therapy used during pregnancy for HIV-related symptoms and diseases probably should not differ from that given to other infected patients. In most instances, the life-threatening nature of HIV-related illness will outweigh the risks from therapeutic agents. However, obstetric considerations may necessitate modification of standard treatment regimens.

Pregnancy does not change the diagnostic criteria for AIDS. However, as with other AIDS patients, pregnant women with AIDS have different clinical presentations in pattern-I and pattern-II countries. Furthermore, making a diagnosis of AIDS in pregnant women who live in developing countries may be more difficult because of the lack of facilities and specialists to diagnose illnesses indicative of AIDS.

To deal with this problem, WHO has developed a clinical definition for AIDS that can be used in areas where diagnostic resources are limited. According to

this definition, AIDS in an adult is defined by the presence of at least two of the following major signs in association with at least one minor sign, in the absence of a known cause for immunodeficiency, such as cancer or severe malnutrition.

Clinical case definition of AIDS in adults

Major Signs

1. Weight loss of 10% or more of body weight
2. Chronic diarrhoea for more than 1 month
3. Intermittent or constant fever for more than 1 month

Minor signs

1. Persistent cough for more than 1 month
2. Generalized pruritic dermatitis
3. Recurrent herpes zoster
4. Oropharyngeal candidiasis
5. Chronic progressive and disseminated herpes simplex infection
6. Generalized lymphadenopathy

In addition, the presence of generalized Kaposi's sarcoma or cryptococcal meningitis is sufficient for the diagnosis of AIDS, even without the required number of major or minor signs. The WHO definition of pediatric AIDS is different from that for adults (see section 4.4).

CHAPTER 3

Preventing HIV Transmission in Labour and Delivery

The recommended procedures described below are designed for use by all cadres of health care workers both in health institutions and in the community. In teaching about universal precautions, the recommendations should be adapted to the level of resources of the health care worker concerned, for example, nursing personnel in hospitals or rural health centres or traditional birth attendants (TBAs) working in the community setting.

3.1 Universal precautions

Health care workers need to consider all patients as potentially infected with HIV and should therefore take precautions to minimize the personal and cross infection risks from exposure to the blood and body fluids of all patients. The prevalence of HIV is increasing the risk that health care workers will be exposed to blood from patients infected with HIV. Adherence to the following routine precautions will prevent transmission of all blood-borne infectious agents, not only to health workers but also between patients.

Protective barriers

Use protective barriers to prevent exposure to blood, body fluids containing visible blood, amniotic fluid and vaginal secretions.

Blood is the most likely source of HIV infection in the occupational setting and great care should be taken to ensure that routine precautions are applied in all cases. Routine precautions should also be applied when dealing with semen and vaginal secretions. Although both of these fluids have been implicated in

sexual transmission of HIV, they have not been implicated in occupational transmission from patient to health care worker. Finally, routine precautions should be applied when dealing with tissues and amniotic, cerebrospinal and peritoneal fluids, although the risk of transmission from these body fluids is unknown.

HIV has been isolated from some of the following fluids: breast-milk, faeces, nasal secretions, sputum, sweat, tears, urine and vomit. However, the risk of transmission of HIV from these fluids and materials is extremely low or nonexistent and extra precautions are only needed if they contain visible blood. In addition, although human breast milk has been implicated in mother-to-fetus/infant transmission of HIV, it has not been implicated in transmission in the occupational setting. Consequently, for these fluids and materials, hand-washing with soap and water is sufficient.

Specific recommendations

- Wear gloves when touching blood, body fluids, mucous membranes, non-intact skin, instruments and other items soiled with blood or body fluids. For example, wear gloves when doing an amniotomy, pelvic examination, delivery, episiotomy or examination and disposal of a placenta.
- Wear gloves when collecting blood specimens and beginning intravenous lines. Remember that these gloves are to protect the health worker from splashes, and thus do not need to be sterile.
- Wear a gown or plastic apron during procedures that are likely to generate splashes of blood or other body fluids. For example, wear a gown or plastic apron when involved in an amniotomy, delivery, episiotomy, caesarean section or clamping and cutting an umbilical cord.
- Wear gloves and a gown or plastic apron when handling a newborn infant until blood and amniotic fluid have been wiped off the infant's skin.
- Dispose of placentae by incinerating, burying or throwing down a pit latrine.
- Exercise caution to ensure that mouth, nose and eyes are protected against splashes of blood and other body fluids.

Hand-washing

Wash hands and other skin surfaces immediately and thoroughly with soap and water if contaminated with blood, body fluids containing visible blood, amniotic fluid or vaginal secretions.

This precaution is especially important in incidents that result in cutaneous exposures involving large amounts of blood or prolonged contact with blood.

Hands should also be washed with soap and water immediately after gloves are removed. Exposure of skin or mucous membranes to contaminated blood rarely results in transmission of HIV, but the precise magnitude of the risk is not known. Skin and mucous-membrane exposures are thought to occur much more commonly than needle-stick injuries. However, the risk associated with the former is likely to be much lower than that associated with the latter.

Take precautions to prevent injuries caused by needles, scalpels and other sharp instruments during procedures and disposal.

Needle-stick injuries associated with HIV-infected blood may, rarely, result in transmission of HIV. A review of several studies suggests that the risk of HIV transmission to health care workers following needle-stick injury involving contaminated blood is less than 1.0%.

Specific recommendations

- After use, needles should be handled as little as possible to prevent needle-stick injuries.
- When using disposable needles, do not recap before disposal; the recapping of needles is associated with a high incidence of injuries.
- Immediately after use, place needles, scalpel blades and other sharp objects in puncture-resistant containers located as close as practical to the use area.
- Where disposable needles are not available and recapping is practised, the cap should be placed on a flat surface, so that the needle can be inserted without the risk of skin puncture.
- Encourage any skin puncture to bleed in an attempt to discharge any material deposited in the wound. Then wash the wound thoroughly with soap and water and dress.

Precautions for health care workers with skin problems

Health care workers who have cuts, grazes, open sores or weeping dermatitis should cover these completely with waterproof dressings. If this is not possible, they should refrain from all direct patient care and from handling patient-care equipment until the condition resolves.

Reports of HIV infection in health care workers following non-needle-stick exposures to blood from infected patients are rare. However, the few cases that have been reported suggest that the risk of HIV transmission in health care workers from such exposures may be increased when HIV-infected blood comes into contact with skin which is chapped, abraded or afflicted with dermatitis.

Precautions for pregnant health care workers

Pregnant health care workers are not known to be at greater risk of contracting HIV infection than health care workers who are not pregnant.

3.2 Environmental precautions

The increasing prevalence of HIV is also increasing the risk that health care workers will be exposed to HIV infected blood in the hospital or clinic environment. However, no environmentally mediated route of HIV transmission has been documented. Nevertheless, the precautions described below should be taken routinely in the care of all patients.

Sterilization of equipment

Currently recommended standard sterilization, disinfection and disposal procedures for patient care equipment are adequate to sterilize, disinfect or dispose of instruments or other items contaminated with blood or other body fluids from persons infected with HIV.

Specific recommendations

- Wear gloves when carrying out the procedures outlined below.
- Where disposable equipment is not available, sterilize before reuse all needles, syringes and instruments that enter tissue or come into contact with mucous membranes. These include, for example, episiotomy and cord scissors, vaginal specula, vacuum extractor cups, forceps and artery forceps.
- Sterilize equipment by autoclaving, boiling or using chemicals (see section 3.3).
- Thoroughly clean needles, syringes and instruments that require sterilization to remove material, such as blood and mucous, before sterilization, taking care to avoid accidental injury.
- Place disposable materials, such as intravenous tubing and maternity pads, that are contaminated with blood and other body fluids to which universal precautions apply in a covered container until burned or buried.

Decontamination of environmental surfaces with chlorine-releasing compounds

Wiping with an appropriate intermediate to low-level disinfectant is acceptable for surfaces such as table tops.

Most spills of blood in the health care setting should be dealt with by removing visible blood with absorbent material (e.g., paper towelling) and then decontaminating the area by wiping it with an appropriate disinfectant as outlined below. For large spills of blood or for spills of concentrated or cultured material (such as may occur in the laboratory setting), the area should first be covered with paper towelling or other absorbent material and then a disinfectant should be poured over the absorbent material and left for 10 minutes. Next, the whole spill is wiped up with fresh absorbent material and placed in a contaminated-waste container. The surface should then be disinfected with an appropriate intermediate to low-level disinfectant. Gloves should be worn throughout the procedure.

Chlorine-releasing compounds are appropriate disinfectants for the decontamination of environmental surfaces and sodium hypochlorite is the most widely used compound (e.g., liquid bleach, eau de Javel). Alcohols are not generally considered suitable for this purpose because of their rapid evaporation and because they quickly coagulate organic residue and do not penetrate it.

Care of linen

Routine hygienic storage of clean linen and normal washing of soiled linen are recommended.

Although soiled linen has been identified as a source of large numbers of certain pathogenic microorganisms, the risk of actual disease transmission is negligible.

Specific recommendations

- Handle soiled linen as little as possible and with minimal agitation.
- Bag soiled linen at the location where it was used.
- Do not sort or rinse soiled linen in patient care areas.

Liquid and solid wastes

Liquid wastes such as bulk blood, suction fluids, excretions and secretions should be carefully poured down a drain connected to an adequately treated sewer system, or disposed of in a pit latrine.

Solid wastes, such as dressings and laboratory and pathology wastes, should be considered as infectious and treated by incineration, burning or autoclaving. Other solid wastes, such as excreta, may be disposed of in a hygienically controlled sanitary landfill or pit latrine.

Solid waste materials in the home (dressings, diapers, menstrual pads) should be considered infectious. They should preferably be burned; if this is not pos-

sible, they should be deposited in a domestic or public hygienically controlled sanitary landfill or pit latrine.

3.3 Sterilization and disinfection methods

Fortunately, HIV is extremely heat-sensitive and is easily killed by standard methods of sterilization and disinfection. In the guidelines which follow, *sterilization* is defined as inactivation of all microbes, including spores, and *disinfection* is defined as inactivation of all microbes except spores.

Initial cleaning

In some health care settings medical instruments are soaked in a chemical disinfectant or detergent before cleaning and further processing prior to reuse. The aim of such soaking is to loosen or prevent drying of organic material. It should not be viewed as making instruments either safe to handle or safe to reuse without further processing.

Heat

Heat is the most effective method for inactivating HIV – methods for sterilization and disinfection based on heat are, therefore, the methods of choice.

Specific recommendations

- Autoclaving (steam sterilization) is the method of choice for reusable medical instruments, including needles and syringes. Operate autoclaves at 121°C (250°F) equivalent to a pressure of 101 kPa (1 atmosphere, 15 lb/in²) for a minimum of 20 minutes.
- Sterilization by dry heat is appropriate, but requires that instruments are heated at 170°C (340°F) for 2 hours. An ordinary electric household oven is satisfactory for dry heat sterilization.
- Boiling achieves disinfection provided instruments, needles and syringes are completely immersed in water and are boiled for 20 minutes. This is the simplest and most reliable method for inactivating HIV when sterilization equipment is not available.
- Heating with a flame until red hot sterilizes metal instruments, such as knives and other skin-piercing instruments used for scarification.

Chemical disinfectants must not be used for needles and syringes and have other important disadvantages.

In addition to being unsuitable for use on needles and syringes, chemical disinfectants can be inactivated by blood and other organic matter; they must be prepared carefully; and they may rapidly lose their strength during storage.

Specific recommendations

- Chemical disinfection should *only* be employed if: (1) neither sterilization nor high-level disinfection by heat is possible, (2) appropriate concentration and activity of chemical can be ensured; and (3) instruments have been thoroughly cleaned.
- The following chemical disinfectants have been shown to be effective in inactivating HIV, when instruments are completely immersed for 30 minutes:
 - (a) glutaral (glutaraldehyde) 2%
 - (b) hydrogen peroxide 6% ^{1,2}
- Commonly available proprietary disinfectants such as Savlon or Dettol, based on hexachlorophene, chlorhexidine or quaternary ammonium compounds are not recommended for sterilization of instruments.

1. Can be corrosive.
2. Not recommended for use in warm climates.

CHAPTER 4

HIV Infection and Care of the Newborn

4.1 Universal precautions during care of the newborn

Universal precautions (see chapter 3) should also be taken when caring for the newborn, and all newborn infants should be regarded as potentially infectious. The following recommendations are for care of the newborn immediately after birth.

Specific recommendations

- When cutting an umbilical cord, wear gloves and a gown or plastic apron to prevent contact with blood and be careful to avoid splashing blood on the face. Remember that delayed clamping of the cord reduces splashing of blood.
- When collecting cord blood, use a needle and syringe rather than milking the cord to avoid spilling blood on the outside of the specimen bottle, and securely fasten the rubber stopper on the specimen bottle to avoid spillage.
- Wear gloves when wiping off blood and amniotic fluid from the skin of the newborn.
- When suction devices are needed to clear the neonatal airways, use wall or bulb suction when available, because secretions in the oropharynx may be contaminated with blood. When mouth suction of the airway cannot be avoided, use a mucous extractor with a trap.

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- The masks that are used for bag-to-mask or mouth-to-mask resuscitation of infants should have a blow-off valve to avoid back-contamination of the bag or mouth of the person resuscitating the infant. Clean and sterilize such resuscitation equipment after use to avoid contamination of other infants.
- Always wear gloves whenever blood specimens are collected and intravenous lines are begun. Remember that these gloves are to protect the health worker from splashes, and thus do not need to be sterile.
- Before reuse, clean and sterilize any instruments used for cutting and clamping the umbilical cord.

Universal precautions do *not* apply to colostrum, breast milk, meconium, faeces, nasal secretions, sputum, sweat, tears, urine and vomit unless they contain visible blood. The risk of transmission of HIV from these fluids and materials is extremely low or nonexistent. In caring for the newborn, contact with all of these fluids and materials occurs routinely. When it does occur, wash off the fluid or material with soap and water.

4.2 Interpreting HIV test results in the newborn

Most children infected with HIV have been infected by mother-to-fetus/infant transmission. Current knowledge suggests that the rate of transmission during pregnancy and at the time of delivery is probably 20-45%. However, during pregnancy, the maternal antibody to HIV is transmitted passively across the placenta to the fetus. Since HIV screening tests detect the presence of this antibody, infants born to HIV-infected mothers will test positive whether they themselves are infected or not. During the first 12-18 months of life, this passively-acquired antibody is metabolized and an increasing number of these infants who are not infected become HIV negative on antibody testing.

This creates serious problems for both health-care providers and the families of these infants. Medical professionals, who care for infants whose HIV infection status cannot be determined, face a diagnostic dilemma. What therapy is appropriate if one of these infants has what appears to be a common childhood illness? If the child is not infected with HIV, the illness probably requires only symptomatic treatment and observation. However, if the child is infected, this illness could be the first step in a rapid downhill course that may lead to death, unless the child is hospitalized immediately and treated with vigorous therapy. Nevertheless, this dilemma may be relatively unimportant compared with the emotional trauma that families of some of these infants experience, even though most of these children are uninfected.

4.3 Clinical signs and symptoms of paediatric HIV infection

The most common symptoms of HIV infection in children are weight loss, failure to thrive, fever and chronic diarrhoea. Oral thrush, which often recurs after treatment, can be the first indication of HIV infection. A significant proportion, probably more than 20%, of infants infected by mother-to-fetus/infant transmission die during the first year of life.

HIV-infected children have an increased frequency of common paediatric infections, such as otitis media and pneumonia. In developing countries, symptoms of other diseases, such as chronic gastroenteritis and tuberculosis, are also increased in these children. In addition, symptoms common to many treatable diseases tend to be more persistent and severe in HIV-infected infants, for example, recurrent fever and diarrhoea and generalized dermatitis. Moreover, HIV-infected infants do not respond as well to treatment of these conditions and are more likely to suffer life-threatening complications.

Both lymphadenopathy and hepatosplenomegaly are common in HIV-infected children. As HIV infection progresses, opportunistic diseases also begin to appear. Finally, many, if not most, of these children have some type of neurological involvement, such as developmental delay or encephalopathy.

4.4 Diagnostic criteria for AIDS in infants

As already noted, the diagnosis of paediatric AIDS is difficult. In addition, in developing countries diagnostic procedures, such as biopsy and culture, are not routinely performed. Thus, the following WHO clinical case definition of paediatric AIDS was developed and is used in many developing countries even though it has certain drawbacks itself.

Clinical case definition of paediatric AIDS

The presence of two major and two minor signs, listed below, in the absence of other known causes of immunosuppression:

Major signs

- (1) Weight loss or abnormally slow growth;
- (2) Chronic diarrhoea for more than one month;
- (3) Prolonged or intermittent fever for more than one month;

Minor signs

- (1) Generalized lymph node enlargement;
- (2) Oropharyngeal candidiasis (thrush in the mouth);
- (3) Recurrent common infections;
- (4) Persistent cough;
- (5) Generalized dermatitis;
- (6) Confirmed maternal HIV infection.

4.5 Recommendations for the care of HIV-positive newborn infants

These general recommendations should be used in the management of HIV-positive infants and in teaching their mothers and care givers during postpartum counselling.

- (1) *Maintain good nutritional status*

In most circumstances, HIV-infected mothers should be encouraged to breast-feed their infants (see section 1.7). These mothers should also be taught appropriate weaning practices for the introduction of solid foods at 4-6 months, as well as encouraged to continue to breast-feed for up to 18-24 months. In addition, regular growth monitoring (preferably every month) is an appropriate way to monitor nutritional status. If growth falters, additional investigations should be done to determine the cause.

- (2) *Provide early and vigorous therapy of common paediatric infections*

All HIV-positive infants should be treated vigorously for common paediatric infections, such as measles and otitis media, irrespective of whether or not they are infected with HIV. Because their immune systems are often impaired, these diseases may be more persistent and severe, and the children may respond poorly to therapy and develop severe complications. Consequently, the mothers of all HIV-positive infants should be encouraged to take their infants for examination and treatment as soon as possible, whenever symptoms develop.

- (3) *Immunize according to standard schedules*

In developing countries, the high risk of measles, poliomyelitis and other preventable diseases to infants and children who have not been immunized, far outweighs the risks from live vaccines, even in those

who are infected with HIV. All infants and children should be immunized with all the vaccines of the Expanded Programme on Immunization (EPI) according to standard schedules. The only exception is that infants with clinical symptoms of HIV infection should not be given BCG vaccine.

It is important that sterilisation procedures for immunisation equipment be strictly followed, to prevent transmission of a variety of infections, including HIV.

(4) *Ensure the child has a life of good quality*

Most HIV-positive infants are not infected. In addition, many of those who are infected will have months of asymptomatic life and some will live for years without symptoms. Every effort should be made by members of the child's family and health-care professionals to help the child lead as normal a life as possible.

CHAPTER 5

Special Prevention Issues: Men, Contraception and Adolescents

5.1 How to reach men with HIV prevention messages

Since high-risk behaviour for HIV infection is more common in young and middle-aged adults than in other age groups, the highest prevalence of HIV infection and AIDS in pattern-II countries is in women of reproductive age (15-44 years) and in men of about the same age. In most countries, women of reproductive age are more likely to have contact with health care providers than men because of their need for prenatal care and family planning services and their children's need for immunizations and other medical care. Men at risk for HIV infection probably will not have as many opportunities for counselling and testing as women. For this reason, instructions about HIV prevention for women should include information that they can share with their husbands or sex partners.

Information about HIV prevention that women may wish to share with their husbands or sex partners includes the following.

- (1) In a sexual relationship between a man and a woman who are not infected with HIV, only persons who are mutually faithful, do not share unsterilized drug injection equipment and are not at risk of acquiring HIV in other ways, are protected against HIV infection (see Section 1.4).

- (2) To provide some protection for his wife or sex partner and her future children from HIV infection, a man should use a condom whenever he has sexual intercourse with other women or other men, especially if he exchanges money for sex. If he has already had unprotected sexual intercourse with other women or men he should consider having an HIV test and using condoms when having sexual intercourse with his wife.
- (3) If a man has sex with women other than his wife or steady sex partner, or with other men, he can minimize his risk of exposure to HIV infection by reducing the number of his sex partners and by using condoms.
- (4) If a man develops symptoms of HIV infection or AIDS, he should consider being tested for HIV infection, and discontinuing sexual intercourse or using condoms until the results are known.
- (5) If a man develops symptoms of a sexually transmitted disease (STD), he should seek diagnosis and treatment of the STD, inform his partner, and consider being tested for HIV infection.

In many cultures, men have more control and fewer restrictions in sexual relationships than women. In addition, many women, even those who are well-educated, do not feel comfortable discussing sexual topics with their husbands or sex partners. Consequently, providing women with information about HIV prevention for their husbands or sex partners without offering the possibility of joint counselling may not be effective and may cause serious anxiety. However, at present information and education are the only methods currently available for preventing HIV infection. If women have this information, they may be able to use it to protect themselves and other members of their families. Moreover, if they discuss this information in terms of "family protection", rather than individual protection, some men may be more receptive to learning about it.

Where circumstances permit women should be encouraged to have joint counselling with their husbands or sex partners. Which couples can be counselled will probably be determined primarily by local factors, such as the availability of staff, the willingness of women to ask their husbands or sex partners and cultural attitudes of men about participating in counselling with women. Some women will need joint counselling more urgently than others. Women with the greatest need may be those who have delivered infants who test positive for HIV. Mothers of HIV-positive infants are infected with HIV, unless the child was infected by transfusion of contaminated blood. In addition, their husbands or sex partners may also be infected. Consequently, since one member of the family is infected and two others might be infected, joint counselling may be helpful. Pregnant women who test positive for HIV are in a similar situation. Other women who might benefit from joint counselling include those who

contract a sexually transmitted disease and those whose husbands or sex partners contract a sexually transmitted disease.

5.2 The role of condoms in the prevention of HIV infection

Prevention by avoiding exposure is the best strategy for controlling the spread of HIV. Abstinence and sexual intercourse with mutually faithful uninfected partners are the only totally effective strategies to prevent sexual transmission of HIV. However, for those, who have sex outside of mutually faithful relationships, strategies that reduce the risk of transmission should be used. Proper use of a fresh, new latex condom with each act of sexual intercourse can reduce, but not eliminate, the risk HIV infection.

If properly used, condoms provide an effective mechanical barrier against sexually transmitted agents, including HIV. For the wearer, condoms provide a barrier that reduces the risk of infections acquired through penile exposure to infectious secretions or lesions of the cervix, vagina, vulva and anus. For the wearer's partner, proper use of condoms prevent semen deposition, contact with urethral discharge and exposure to lesions on the penis.

Both laboratory and epidemiological studies suggest that the use of condoms can effectively prevent the spread of HIV. Laboratory tests have shown that intact latex condoms are impermeable to HIV. Latex condoms block the passage of HIV, but natural membrane condoms, which contain small pores, may not, suggesting that latex condoms afford greater protection against HIV than natural membrane condoms. In addition, in an investigation of HIV-negative, heterosexual spouses of patients with AIDS, consistent condom use was associated with a marked reduction of HIV transmission during a one- to three-year follow-up period. Furthermore, in studies of prostitutes in Zaire and Greece, condom use was associated with negative HIV test results.

Condoms are not always effective in preventing HIV infection. Failure of condoms to provide protection is usually the result of either inadequate or improper use. A fresh, new latex condom should be used during every act of sexual intercourse, including vaginal, anal and oral penetration, to prevent exposure to genital secretions of an infected person. Although condoms occasionally break during sexual intercourse, available information suggests that this is usually the result of deterioration of the condom from either age or improper storage. When condoms leak, improper usage is probably the cause.

Explicit instructions about how to use condoms should be provided for women at risk for HIV infection. Since some women have never seen or touched

a condom, condoms are a useful teaching aid in MCH clinic settings and during counselling for HIV prevention each client should open a condom package correctly and roll the condom on to several fingers of one hand or a suitable teaching aid. In addition, the following instructions may be useful in explaining what kind of condoms to use, how to put a condom on the penis and how to take it off correctly:

What kind of condoms to use

- (1) The best condoms to use are made of latex, have reservoir (nipple) ends and are lubricated.
- (2) Always use a fresh, new latex condom for each act of sexual intercourse.
- (3) Do not use condoms that are brittle, sticky or discolored (usually the result of age) because these condoms may not prevent infection.
- (4) If extra lubrication is needed, only water-based lubricants should be used. Petroleum- or oil-based lubricants, such as petroleum jelly (Vaseline), lotions and cooking oils, should not be used because they weaken the latex.
- (5) If a condom breaks during sexual intercourse, it should immediately be replaced with another one.

How to put on a condom

- (1) Put the condom on after the penis becomes hard (erect).
- (2) Put the condom on before any genital contact.
- (3) Hold the tip of the condom between a finger and thumb of one hand, leaving space at the tip to collect semen, but squeezing it to prevent air from being trapped in the tip.
- (4) With the other hand put the condom on the end of the penis and unroll the condom down the length of the penis by pushing down the round rim of the condom. If this is difficult, the condom is "inside out". Turn the condom the other way round, take hold of the other side of the tip and unroll it.
- (5) When the rim of the condom is at the base of the penis (near the pubic hair), penetration can begin.

How to take off a condom

- (1) Soon after ejaculation, withdraw the penis while it is still hard, holding the bottom rim of the condom to prevent it from slipping off the penis.
- (2) Do not let the penis go soft inside the partner because the condom may slip off and spill semen in or near the vagina.

- (3) Do not allow semen to spill on hands or other parts of the body, and wash hands and other body parts if contact with semen occurs.
- (4) Wrap used condoms in waste paper before disposing of them safely by flushing them down a toilet, throwing them down a pit latrine, burying them or burning them.
- (5) Wash hands to remove vaginal secretions/semen which can also be infectious.

It is also important to point out that heat, moisture and sunlight can damage condoms. For this reason, condoms should be stored in a cool, dry place out of direct sunlight. Also, when only one partner in a couple is infected, consistent condom use should be encouraged to reduce the risk of transmission to the uninfected partner. Finally, STD treatment, HIV counselling and testing, and condom promotion for the male partner are important aspects of the management of sexually transmitted diseases in women.

5.3 Contraceptive methods and HIV infection

For women who are sexually active, contraceptive methods can prevent HIV transmission in several ways. If used properly (see section 5.2), condoms can prevent HIV transmission to an uninfected person, if she or he has sexual intercourse with an infected partner. Furthermore, since the transmission rate of HIV infection from mother-to-fetus/infant during pregnancy and at the time of delivery is probably between 20% and 45%, any contraceptive method that prevents pregnancy in an HIV-infected woman will, as a result, also prevent HIV transmission to a fetus/infant.

Current information provides no convincing evidence that other contraceptive methods prevent HIV infection. Since little is known about how and where in the genital tract HIV transmission occurs, the use of other barrier methods, such as diaphragms, cervical caps and sponges, are not recommended as protection against HIV infection. In addition, withdrawal (coitus interruptus), which is not an effective method of contraception, is not recommended for prevention of HIV transmission. Contact of the penis with vaginal secretions can mediate female-to-male transmission, and pre-ejaculate fluid may contain HIV thus permitting male-to-female transmission, even though ejaculation takes place outside the partner's body.

Moreover, since HIV may exist both as an extracellular virus in seminal fluid and within the white cells of the ejaculate, vasectomized men may still be able to

transmit HIV even though their ejaculate contains no sperm. Consequently, vasectomized men should take the same precautions as others. Vasectomized men should also be informed that infected women can transmit HIV to them.

Consistent use of condoms is the only contraceptive method that prevents both pregnancy and sexual transmission of HIV. Women who use other contraceptive methods, such as sterilization, oral contraceptives, contraceptive injections or implants, or an intrauterine device (IUD), should be counselled to ensure that their partners use condoms as well, if they are at risk of HIV infection. Couples in which the woman is menstruating, infertile or menopausal should also use condoms, if one or both of them is at risk of HIV infection.

Current evidence is insufficient to suggest that any contraceptive method increases the risk of HIV transmission or alters the course of the infection. Concern has been raised about some forms of contraception for the following reasons. Certain barrier methods, such as the diaphragm and contraceptive sponge, may cause a small amount of trauma to the vagina or cervix, which might increase the risk of HIV infection. However, no evidence supports this theoretical possibility. A study of prostitutes suggested that oral contraceptive pills might increase the risk of HIV infection, but at least two subsequent studies found no relationship between the use of such pills and HIV transmission. Further studies are needed to determine if HIV infection is associated with the use of oral contraceptives. IUDs should not be used by women who are at risk of being infected with a sexually transmitted disease. For this reason, women at risk for HIV infection probably should not use an IUD. No information is currently available about the use of injectable contraceptives, such as Depo-provera, or contraceptive implants, such as Norplant, and the risk of HIV infection. However, both methods could theoretically increase the risk of HIV infection if contaminated instruments were used in administering the contraceptives.

5.4 Prevention of HIV infection and AIDS in adolescents

Adolescents currently comprise only a small percentage of all reported AIDS cases. However, in some countries the highest prevalence of AIDS is in adults aged 20-29 years. Because of the latency period of several years to as much as a decade between HIV infection and clinical symptoms of AIDS, some of these adults with AIDS probably became infected during adolescence. Many adolescents are sexually active (heterosexual and homosexual) and some have more than one sex partner, while others use intravenous drugs; all of these teenagers are at high risk of becoming infected with HIV. High rates of teenage pregnancies and infections with other STD in some countries highlight the

potential for HIV transmission in this population. HIV infection in adolescents is thus likely to increase in the future.

In some areas, teenagers are at risk from “sugar daddies” – wealthy men who provide gifts and money in exchange for sex with these youngsters, not only because they are young but also because they have not been sexually active and thus are considered “safe” in regard to HIV infection. Because these men usually have numerous sex partners, they are at high risk of HIV infection and may be a source of HIV infection to adolescent females and males.

Health providers should develop strategies to prevent HIV infection in adolescents that are appropriate for their community. In discussing prevention, the public health rationale for abstinence before marriage and mutual faithfulness within marriage, should be emphasized. Teenage boys and girls should understand that both sexual abstinence before marriage and faithfulness during marriage are acceptable and should be encouraged. In addition, discussions about sex without penetration may be appropriate for some adolescents who are already sexually active. In all other instances, the routine correct use of a condom is strongly recommended.

An optimal time to begin discussions with adolescents about HIV prevention may be at puberty before they become sexually active. Consequently, MCH/FP service providers, who may be better informed about HIV and more willing to discuss this topic, might wish to collaborate with school teachers in developing HIV/AIDS educational programmes targeted at students in schools, colleges and universities. In addition, MCH/FP service providers might wish to collaborate with community groups to develop information about HIV and AIDS that is appropriate for bars, social clubs and places of employment to reach teenagers who are out of school and others who are unemployed. Peer counselling should be used wherever possible.

Pregnant teenagers need to learn the same information about HIV that is taught to all women. However, because of their age they require special attention for several reasons. Many individuals, but especially adolescents, learn better in an environment that makes them feel comfortable and when they are able to actively participate in the learning process. Moreover, some of these young people will not remember detailed information about HIV unless they are told about it repeatedly. In addition, since many pregnant teenagers are unmarried and their pregnancies are unplanned, they often need assistance in developing realistic plans for both contraception and HIV prevention. Postpartum follow up will also be needed to achieve behavioural change that will effectively prevent HIV infection.

CHAPTER 6

Logistics and Supplies for the Prevention of HIV Infection

6.1 Providing good quality supplies to prevent HIV transmission

This chapter looks at what can be done to ensure that adequate supplies are available for MCH/FP service providers and their patients to prevent the transmission of HIV. Most MCH/FP managers are already supervising personnel and managing the procurement and distribution of supplies within a health care system. The suggestions given here are designed to help them in these tasks – some of them may not be appropriate in every setting, but they may perhaps in turn suggest other ways of solving problems.

It is important that supplies of essential equipment, especially plastic aprons, soap and gloves, should be distributed to all cadres of MCH/FP workers engaged in labour and delivery service in health institutions and also to traditional birth attendants working in the community.

Recommendations should be developed for the more effective use of available supplies to reduce the risk of HIV transmission, and for ordering any additional supplies that are needed. These recommendations should be discussed with MCH/FP staff, especially during teaching sessions using these guidelines (see Chapter 7).

The recommendations for prevention of HIV transmission during labour and delivery discussed in Chapter 3 should be adapted to the availability of resources. For example, the labour and delivery ward at a teaching hospital may have a

plentiful supply of sterile gloves, whereas a small, rural health clinic may have more deliveries than gloves. As a result, universal precautions at the teaching hospital may include providing three pairs of gloves for each woman who delivers, while at the rural health clinic it is only possible to provide adequate soap, so that the staff can thoroughly wash their hands after each exposure to blood.

Health professionals who manage maternal and newborn services are responsible for ensuring that their staff have fullest possible access to training and supplies to prevent HIV transmission in the workplace. Failure to do this may lead to low morale among MCH/FP service providers and loss of credibility among the patients utilizing these services.

6.2 Essential supplies

The essential supplies needed by MCH/FP service providers and their patients, especially during labour and delivery, to reduce the risk of HIV transmission include gloves, soap, protective clothing, sterile instruments and disinfectants. Protective clothing includes plastic aprons, that protect the body from exposure to blood and other body fluids during delivery. Gloves, soap and protective clothing will allow MCH/FP service providers to follow the first two recommendations for universal precautions: use protective barriers to prevent exposure to blood and wash skin surfaces immediately with soap if contaminated with blood. In addition, disinfectants will allow them to follow one of the recommendations for environmental precautions: chemical solutions like household bleach can be used to decontaminate spills of blood. Sterilization equipment is also essential in order to ensure that, where disposable equipment is not available, all needles, syringes and other instruments can be properly sterilized.

Every effort should be made to teach traditional midwives the basic principles of HIV transmission and how they should protect themselves during labour and delivery.

Other supplies that are not essential but may reduce the risk of HIV transmission during labour and delivery include masks, protective eyewear and shoe coverings. Although these non-essential supplies are available and used in some developed countries, little is known about their value in reducing the risk of HIV transmission. Consequently, they should not be routinely recommended in countries where resources are limited.

As MCH/FP care providers take on an increasing role in providing information and counselling about HIV infection and AIDS, they will also need to have continuing supplies of condoms, and access to HIV antibody testing facilities.

6.3 Factors affecting the availability of supplies at the local level

Although a number of factors influence the availability of supplies at the local level, the following are especially important:

- (1) availability within the country (or at the central level);
- (2) the system of distribution in the country and locally;
- (3) storage capabilities at the local level;
- (4) projections of the need for supplies;
- (5) monitoring the use of supplies.

Each of the factors has its own set of problems, which are discussed further below using gloves and condoms as examples in arriving at solutions.

6.4 Obtaining essential supplies

Difficulties in obtaining supplies, such as gloves and condoms, do not necessarily mean that they are not available at the central level. Frequently, the lack of supplies is the result of slow transportation, poor communication, or inadequate planning, and/or budgeting. Using the proper channels, every effort should be made to determine what is wrong, in person whenever possible. Most people respond better to a personal appeal for help than to a written complaint.

Even if gloves and condoms are not available from the central level, other sources in the country will probably have them. However, it is necessary to determine what the sources are and how to contact them. Others who manage maternal and newborn services may be able to provide this information. Further, if they have a surplus, it may be possible to offer an exchange for something that they need. Consideration should also be given to the purchase of supplies on the commercial market. For example, instead of charging people for health care services, they might be asked to provide supplies that cannot be obtained within the health care system but are available from private merchants. In addition, it may be possible to substitute something else for what is needed.

The distribution and supply of condoms is unique because international donor agencies have made them readily available throughout the world. One or more of these agencies probably has a representative in the country, most likely in the capital city. In addition to national AIDS control programmes, international agencies which provide condoms include the Canadian International Development Agency (CIDA), the Danish International Development Agency (DANIDA), the International Planned Parenthood Federation (IPPF), the

Swedish International Development Agency (SIDA), the United Nations Population Fund (UNFPA), the United States Agency for International Development (USAID), and the World Health Organization (WHO).

6.5 Efficient use of essential supplies

The way in which essential supplies are used at the local level, i.e. by each local MCH/FP manager, can be changed to improve efficiency. Discussions with the staff can often be helpful in finding solutions. For example, suppose that you are the manager of MCH/FP services. Your responsibilities include supervision of staff, the training of traditional midwives, procurement and distribution of supplies and quality assurance. You have a supply of gloves but the gloves are relatively expensive and the supply is limited. You know that no more gloves are available at the central level because you have already discussed this problem in person with staff at the health ministry. For this reason, you decide to deal with the problem at the local level. You have a meeting with your staff who provide you with some suggestions.

One suggestion is to limit the number of gloves that are used for each woman in labour. This suggestion seems reasonable because you have enough gloves to provide about three for each new patient. The only problem is what to do when the care of a patient requires more than three pair of gloves. You decide that the best solution for your ward is to collect gloves after they have been used, then clean, re-wrap and autoclave them for reuse. Only in this way will your staff be able to examine each patient whenever indicated, while providing adequate infection control for the patient, her infant and the examiner and using only those gloves available from the central level. Another suggestion is to educate the cleaning staff about how HIV is transmitted and to buy them thick rubber gloves that can be used daily for several months. This suggestion was prompted by the observation that one member of the cleaning staff wore a new pair of sterile gloves each day. The final suggestion is to ask women who can afford it to buy two pairs of gloves at the local market and bring them to the health facility when they come to deliver or keep them in their homes in the event of a home birth.

6.6 Proper storage of supplies

Supplies must be stored properly to ensure that they do not deteriorate in quality. For example, condoms can easily be damaged if exposed to heat, moisture or sunlight. When storing condoms, therefore, it is important to remember the following points:

- Condoms should be stored in a well ventilated, dry and clean area.
- In storage, condoms should be protected from direct sunlight and the temperature should not exceed 24°C.
- Boxes containing condoms should be stored above the ground or floor on pallets to avoid prolonged exposure to dampness or moisture.
- Boxes stored on pallets should be to a height of not more than 8 feet (2.4 metres), and a gap of 1 foot (30 centimetres) should be left between each pallet and away from a wall.
- Boxes containing condoms should be stored in such a way that the manufacturing date is visible.
- Wherever suggested shipping and storage precautions are followed, the estimated shelf-life⁶ of condoms from date of manufacture is from 3 years (in tropical areas) to 5 years (in temperate climates).
- Older condoms should be issued before newer ones to avoid problems with aging that might damage them: the first-in/first-out principle.
- Carefully sampled batches of stored condoms should ideally be tested about every nine months. If qualified quality assurance testing is not available in the country, assistance should be sought from WHO for this process.

6.7 Some simple methods of calculating future needs for essential supplies

Accurate projection of future needs is important to assure that supplies are available without interruption so that MCH/FP staff can practise universal precautions to reduce the risk of HIV transmission. The key to making accurate projections is knowing the number of specific events that have occurred in the past during certain periods of time, and using this information to predict future needs. These skills can be learned easily by reviewing records, such as those for a hospital or clinic, and counting the events for certain time periods. For example, the number of women who attended the family planning clinic in the past month can be counted from the records in the registration book, the number of deliveries in the past year from the delivery register and the number of condoms for a year from the number of boxes emptied during the past 12 months times the average number of condoms per box.

Example 1

To calculate the minimum number of pairs of gloves needed for the labour and delivery ward in a typical district hospital each month, the following information is needed.

- (A) Average number of deliveries a month (say about 100)
- (B) Average number of pairs of gloves used for each delivery (about 3)
- (C) Average number of pairs of gloves used per month for other tasks, such as pelvic examinations of women in false labour and neonatal examinations by paediatricians (about 50).

The formula for calculating the number of pairs of gloves needed per month would be:

$$\begin{aligned}\text{pairs of gloves needed} &= (A \times B) + C \\ &= (100 \times 3) + 50 \\ &= 350.\end{aligned}$$

In addition, if gloves are sterilized for reuse, it is necessary to find out how many times gloves can be reused in order to calculate needs accurately.

Similar calculations can be made for other essential supplies. This information can be used to obtain adequate amounts of essential supplies.

Example 2

If you have inadequate supplies of gloves and the opportunity to talk with the person who provides your hospital or ward with supplies, make your argument for additional gloves on the basis of your calculations.

Instead of complaining that you are always short of gloves, and you need more you can explain your needs more accurately with a statement like, "We have an average of 100 deliveries per month, yet we only receive 50 new pairs of gloves each month. Even if we sterilize and reuse gloves twice, we calculate that we still need about 50 more pairs of gloves each month to practise universal precautions during labour and delivery. We realize that your supplies are low, but can you give us at least another 25 pairs of gloves each month?"

6.8 Monitoring essential supplies

Essential supplies should be monitored to ensure that adequate amounts are available at all times without overstocking.

Example 3

To monitor the supplies of condoms, the following four questions should be asked:

- (A) How many condoms were available at beginning of the month?
(say 1500)
- (B) How many condoms were distributed during the month? (1200)
- (C) How many condoms were delivered to the clinic during the month?
(1000)
- (D) How many condoms are left at the end of the month?

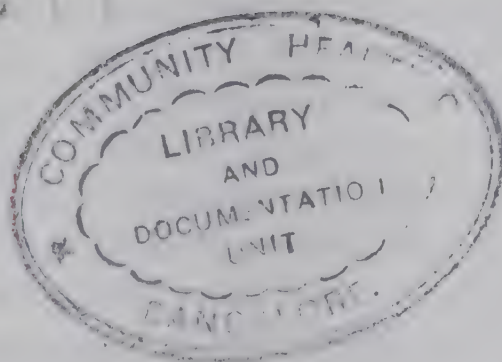
If the supply and distribution system at the clinic is working properly, the following equation should be correct.

$$(A - B) + C = D$$

$$(1500 - 1200) + 1000 = 1300$$

If this simple equation is not correct, then some type of problem exists in the supply system. The source of the problem should be found and corrected.

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CHAPTER 7

How to Use these Guidelines in Training

7.1 Introduction

In this chapter, a programme is suggested for using the information presented in earlier chapters in training staff about HIV infection and AIDS in relation to maternal and child health care.

The teaching programme is divided into four sessions. The sessions can be presented together or separately in one to four seminars. The first session consists of an overview of HIV infection and AIDS, including the routes of transmission, the distribution and the clinical spectrum of HIV. The second session includes the clinical presentation and care of HIV infection in women and children. The third session includes the prevention of HIV infection in women and the recommendations to prevent HIV transmission in labour and delivery wards. The final session teaches counselling skills, using demonstration and role playing.

The recommendations for each session include specific objectives, content and suggested topics for visual aids. The specific objective of each session is a description of what the participant should be able to do at the end of the session. The content includes what topics to teach and how to teach them. Since the purpose of the guidelines is behavioural change to reduce the risk of HIV transmission, people should not only know what reduces the risk of transmission, but they should also feel comfortable with the recommendations. Consequently, the participants need an opportunity to ask questions, discuss potential problems and express their fears and doubts. For this reason, equal time should probably be given to lectures and to discussions in the first three sessions. For

each session there is a list of suggested topics for visual aids, which can be posters, transparencies or slides. To help in preparing visual aids, a cross-reference to a section in the guidelines is provided with each suggested topic.

7.2 Rationale for training

HIV infection and its clinical manifestations, including AIDS, are the result of specific behaviours that place people at high risk of HIV transmission. To reduce the risk of transmission, people need to modify these behaviours. Providing information about HIV and AIDS will explain how and why they should modify their behaviour, but further skills also need to be acquired in order to use this information in modifying behaviour.

In addition, fear and misinformation are preventing appropriate care of HIV-infected patients, including those with AIDS. Accurate knowledge about HIV should eliminate this fear and correct misinformation, resulting in improved patient care.

7.3 General objectives

The main objective is to provide MCH/FP staff and others with a review of the latest information about HIV infection and AIDS as it relates to maternal and newborn care and to suggest how this information might be used to improve such care. A secondary objective is to relate the relevance of this information to the local situation.

7.4 Session one

Specific objectives

At the end of this session, the participants should be able to:

- (1) define the terms, HIV infection and AIDS;
- (2) describe the routes of transmission;
- (3) explain worldwide distribution;
- (4) describe the disease process.

Content

The session should be divided equally between lecture and discussions on these four topics:

- (1) What is HIV infection and AIDS?
- (2) Routes of transmission
- (3) Worldwide distribution of HIV infection and AIDS
- (4) The clinical spectrum of HIV infection

Suggested topics for visual aids

- (1) Definition of AIDS (sections 1.1 and 1.11)
- (2) Sexual transmission (section 1.3)
- (3) Transmission through exposure to blood (sections 1.3 and 1.10)
- (4) Perinatal transmission (sections 1.5 and 1.6)
- (5) Distribution (section 1.2) – draw a world map and use different colours to illustrate the patterns of HIV infection and AIDS
- (6) Clinical spectrum of HIV infection (section 1.1).

7.5 Session two

Specific objectives

At the end of this session, the participants should be able to:

- (1) define behaviours that place individuals at increased risk for HIV infection;
- (2) list the signs/symptoms of HIV infection in children and adults;
- (3) outline recommendations for care of HIV-seropositive newborn infants and HIV-infected women;
- (4) state the clinical definitions of paediatric AIDS and AIDS in adults.

Content

The session should be divided equally between lectures and discussions on these topics:

- (1) High-risk behaviours for HIV infection
- (2) Early signs and symptoms of HIV infection in adults
- (3) Care of HIV-infected pregnant women
- (4) Clinical definition of AIDS in adults
- (5) Care of HIV-seropositive newborn infants
- (6) Signs and symptoms of paediatric HIV infection
- (7) Definition of paediatric AIDS.

Suggested topics for visual aids

- (1) High-risk behaviours for HIV infection (sections 1.3, 1.4 and 1.10)
- (2) Early signs/symptoms of HIV infection in adults (section 2.6)
- (3) Prenatal care for HIV-infected women (sections 1.9 and 2.5)
- (4) Clinical definition of AIDS in adults (section 2.5)
- (5) Recommendations for care of HIV-seropositive newborn infants (sections 4.1, 4.2 and 4.5)
- (6) Signs and symptoms of paediatric HIV infection (section 4.3)
- (7) Definition of paediatric AIDS (section 4.4).

Other visual aids, such as pictures and posters that show children and adults with AIDS, may be useful for this session.

7.6 Session three

Specific objectives

At the end of this session, the participants should be able to:

- (1) list the 10 recommendations for reducing risk of HIV transmission in women;
- (2) discuss strategies to reduce the need for blood transfusions at delivery;
- (3) state 5 universal and 4 environmental precautions to prevent HIV transmission in labour and delivery wards;
- (4) describe 3 guidelines on sterilization and high-level disinfection to prevent HIV transmission.

Content

The session should be divided equally between lecture and discussion on these topics:

- (1) Recommendations for reducing HIV transmission in women
- (2) Strategies to reduce the need for blood transfusions at delivery
- (3) Universal and environmental precautions
- (4) Guidelines on sterilization and high-level disinfection.

Suggested topics for visual aids

- (1) Recommendations to reduce HIV infection in women (sections 1.4, 2.1 and 5.2)
- (2) Reducing the need for blood transfusions at delivery (section 2.2)
- (3) Universal precautions (section 3.1)
- (4) Environmental precautions (section 3.2)
- (5) Guidelines on sterilization and disinfection (section 3.3).

7.7 Session four

Specific objective

At the end of this session, the participants should recognise the importance of, and be able to provide HIV counselling.

Content

The session should contain a demonstration (film or role play), lecture and role playing by participants. Topics covered should include:

- (1) What is counselling?
- (2) Objectives of counselling.
- (3) Who and when to counsel?
- (4) What to say and how to say it?
- (5) Confidentiality.

Suggested visual aids

This topic should be introduced by showing a film or role play on how to counsel and how not to counsel, followed by a discussion on positive and negative aspects of counselling.

- (1) Definition of counselling (section 2.3)
- (2) Two objectives of counselling (sections 2.3, 5.1 and 5.4)
- (3) Pre-test counselling (section 2.3)
- (4) Post-test counselling (sections 1.8, 2.3, 2.4 and 5.3)
- (5) Confidentiality in counselling for HIV (section 2.3).

7.8 Evaluation

Prior to teaching the four sessions contained in this chapter, the participants should be asked how much they know about HIV by using 10 objective questions (see section 8.4). This information can be used to orient teaching sessions to the level of understanding of the participants. After teaching these sessions, the same 10 questions can be used to determine how much they have learned. This will show how effective the teaching has been. However, for these teaching sessions to be successful the participants have to use this knowledge in the clinical area. Consequently, it is important to observe whether the guidelines are implemented in the work situation for the benefit of patients and staff (see chapter 8).

CHAPTER 8

Measuring the Impact of the Guidelines

8.1 Introduction

This document needs to be adapted and simplified as necessary by MCH/FP managers in order that service providers can make full use of its content. Reference to “guidelines” in this chapter will mean such adapted versions.

The following four key questions can be used to evaluate rapidly the distribution and implementation of the guidelines:

- (1) Has a simplified local version of the guidelines been adapted for MCH/FP service providers?
- (2) Have the guidelines been distributed to MCH/FP service providers?
- (3) Have the guidelines been read and understood by MCH/FP service providers?
- (4) Are the guidelines being followed by MCH/FP service providers?

In order to assist MCH/FP programme managers in answering questions 2-4 above (assuming the answer to question 1 is yes), four sample questionnaires that can be used as evaluation tools, together with instructions for their use, are given below.

8.2 Evaluation Tools

Sample Questionnaire 1:

Assessing the distribution of the guidelines and assessing the knowledge of MCH/FP service providers

Health facility/clinic _____ Date _____

Designation of MCH/FP worker _____ Evaluator _____
(examples: matron, sister, midwife, nursing assistant, TBA)

| Questions | Response (Circle response) | |
|--|-------------------------------|-----------|
| 1. Can the MCH/FP service provider show you a copy of the guidelines? | Yes | No |
| 2. Can the MCH/FP service provider answer these questions about HIV infection? | | |
| 2.1 What are the three routes of transmission? (Sexual, exposure to infected blood and blood products, mother-to-fetus/infant) | Correct | Incorrect |
| 2.2 Will all babies born to HIV infected mothers be infected? (No, 20-45% will be) | Correct | Incorrect |
| 2.3 Why is the use of gloves recommended for both delivery and care of the baby before it is dried off? (Because blood or liquor may be infected) | Correct | Incorrect |
| 2.4 Can (name of bleach available locally) kill the HIV? (Yes) | Correct | Incorrect |
| 2.5 Does the partner of an HIV-infected woman need to use condoms? (Yes, to prevent transmission to the partner) | Correct | Incorrect |
| 2.6 Does the partner of an HIV infected woman who is pregnant need to use condoms? (Yes, to prevent transmission to her partner) | Correct | Incorrect |

Any other observations/comments _____

Any problems with implementation _____

Instructions for use: Sample Questionnaire 1

Question 1:

Can the MCH/FP service provider show you a copy of the guidelines?

This question will answer the second key question, "Have the guidelines been distributed to MCH/FP service providers?"

Based on the results, the evaluator should set specific objectives or targets for the future as illustrated in the following example.

Example 1a

Objective: 90% of MCH/FP service providers will have the guidelines by January 1991.

To evaluate how well this objective has been met, the percentage of MCH/FP service providers with the guidelines may be calculated using this formula:

$$\frac{\text{Number of MCH/FP service providers with the guidelines}}{\text{Total number of MCH/FP service providers}} \times 100$$

The evaluator should have copies of the guidelines to distribute to those MCH/FP service providers who do not have them.

Questions 2.1-2.6:

Can MCH/FP service providers answer these questions about HIV infection?

These questions will answer the third key question, "Have the guidelines been read and understood by MCH/FP service providers?". The evaluator can use these questions or select others from the list in section 8.4. The initial evaluation will provide an estimate of the baseline level of knowledge, which can be compared to that of subsequent evaluations. If certain topics about HIV infection are poorly understood, questions on these topics may be appropriate for evaluation, following efforts to educate the MCH/FP service providers. In addition, the evaluator should set specific objectives as illustrated in the following example.

Example 1b

Objective: 90% of MCH/FP service providers will know the content of the guidelines by June 1991*

To evaluate how well this objective has been met, the percentage of MCH/FP service providers who answer the questions about HIV correctly may be calculated using this formula.

$$\frac{\text{Number of MCH/FP staff who answer at least 4 of 5 questions correctly}}{\text{Total number of MCH/FP staff evaluated}} \times 100$$

The investigator should review and explain incorrect answers following the evaluation.

* They can answer at least 80% of the questions correctly.

Sample Questionnaire 2:

Assessing whether the guidelines are being followed in clinical practice

Health facility/clinic _____ Date _____

Designation of MCH/FP worker _____ Evaluator _____
 (examples: matron, sister, midwife, nursing assistant, TBA)

| Observations | Response (Circle response; NA, not applicable) | | |
|--------------|---|--|--|
|--------------|---|--|--|

Observation during labour and/or delivery

- | | | | |
|---|-----|----|----|
| 1. (A) Sterile gloves are worn for each vaginal examination | Yes | No | NA |
| (B) Sterile gloves are worn for handling baby | Yes | No | NA |
| 2. Gloves are worn when handling the placenta | Yes | No | NA |
| 3. (A) Plastic aprons are worn for amniotomy | Yes | No | NA |
| (B) Plastic aprons are worn for delivery of baby and of the placenta | Yes | No | NA |
| 4. Hands are thoroughly washed, immediately: | | | |
| (A) after removal of gloves | Yes | No | NA |
| (B) after delivery of baby/placenta | Yes | No | NA |
| (C) after contamination with blood | Yes | No | NA |
| 5. Placenta is disposed of by burning, burying or throwing in a pit latrine | Yes | No | NA |

Observation of the disposal of needles, scalpel blades and other sharp objects

- | | | | |
|--|-----|----|----|
| 1. Disposable needles are not recapped before disposal (Needles should NOT be recapped before disposal) | Yes | No | NA |
| 2. Needles, scalpel blades and other sharp objects are disposed of as soon as possible after use. | Yes | No | NA |
| 3. Needles, scalpel blades and other sharp objects are disposed of in a puncture proof container | Yes | No | NA |
| 4. Non-disposable needles are recapped correctly | Yes | No | NA |

Any other observations/comments _____

Any problems with implementation _____

Instructions for use: Sample Questionnaire 2

Method for evaluation:

Observation of a health worker during labour or delivery and disposal of needles, scalpel blades and other sharp objects.

The results of these observations address part of the fourth key question, "Are the guidelines being followed by MCH/FP service providers?". The evaluator should record what is observed during the evaluation. However, these observations should be interpreted with caution because the actions of one staff member may not accurately reflect what other staff members are doing. In addition, the staff member who was observed may act differently when not observed. Moreover, an unusual circumstance may have occurred. The evaluator should set specific objectives to achieve, as illustrated in the following example.

Example 2

Objective: 80% of MCH/FP service providers will use sterile gloves for vaginal examinations and delivery of the baby and placenta.

The percentage use of sterile gloves may be calculated using this formula:

$$\frac{\text{Number of 'yes' responses to the observations about use of sterile gloves}}{\text{Number of 'yes' responses + number of 'no' responses to this observation}} \times 100$$

In a supportive and non-threatening manner, the investigator should discuss the results of these observations with the staff. Recommendations in the guidelines that were correctly followed should be identified and discussed. Recommendations not followed should be discussed in light of their rationale in the local context. Since the guidelines cannot be followed unless essential supplies are available, the availability of supplies should also be discussed.

Sample Questionnaire 3: Assessing whether the guidelines are being followed in sterilization and disinfection practices

Health facility/clinic _____ Date _____

Designation of MCH/FP worker _____ Evaluator _____
(examples: matron, sister, midwife, nursing assistant, TBA)

Observations

Response
(Circle response; NA,
not applicable)

Sterilization/high level disinfection

- | | | | |
|--|-----|----|----|
| 1. Instruments are thoroughly cleaned before sterilization or disinfection | Yes | No | NA |
| 2. Blood spills are flooded with disinfectant and then wiped up | Yes | No | NA |
| 3. What method of sterilization or high level disinfection is used: | | | |
| (A) autoclaving? | | | |
| (If yes, go to #4) | Yes | No | NA |
| (B) dry heat? | | | |
| (If yes, go to #5) | Yes | No | NA |
| (C) boiling? | | | |
| (If yes, go to #6) | Yes | No | NA |
| (D) chemical disinfectants? | | | |
| (If yes, go to #7) | Yes | No | NA |
| 4. When autoclaving, is the autoclave operating: | | | |
| (A) at least at 121 °C (250 °F)? | Yes | No | NA |
| (B) at a pressure of 1 atmosphere (101 kPa, 15 lb/in ²)? | Yes | No | NA |
| (C) for at least 20 minutes? | Yes | No | NA |
| 5. When using dry heat, are the instruments kept: | | | |
| (A) at 170 °C (340 °F)? | Yes | No | NA |
| (B) at the required temperature for at least 2 hours? | Yes | No | NA |
| 6. When boiling, are the instruments: | | | |
| (A) completely submerged under the water? | Yes | No | NA |
| (B) boiled for at least 20 minutes? | Yes | No | NA |
| 7. When chemical disinfectants are used: | | | |
| (A) is the appropriate disinfectant used? | Yes | No | NA |
| (B) are needles and syringes excluded? | Yes | No | NA |
| (C) are instruments soaked for 30 minutes? | Yes | No | NA |

Any other observations/comments _____

Any problems with implementation _____

Instructions for use: Sample Questionnaire 3

Method for evaluation:

Observation of sterilization of instruments

The results of these observations address a part of the fourth key question, "Are the guidelines being followed by MCH/FP service providers?" The evaluator measures the use of the guidelines directly by observing sterilization and disinfection methods. Once again, the evaluator should set specific objectives as illustrated in the following example.

Example 3

Objective: 100% of MCH/FP service providers will follow the correct procedure for boiling instruments (complete submersion, boiling for 20 minutes).

The percentage of providers adhering to the correct procedure may be calculated using this formula:

$$\frac{\text{Number of 'yes' responses to the observations about boiling}}{\text{Number of 'yes' responses + number of 'no' responses to this observation}} \times 100$$

In a supportive and non-threatening manner, the investigator should discuss the results of these observations with the staff. Recommendations in the guidelines that were correctly followed should be identified and discussed. Recommendations not followed should be discussed in light of their rationale in the local context. Since the guidelines cannot be followed unless essential supplies are available, the availability of supplies should also be discussed.

Sample Questionnaire 4:**Assessing whether the guidelines are being followed in supply and storage practices**

Health facility/clinic _____ Date _____

Designation of MCH/FP worker _____ Evaluator _____
(examples: matron, sister, midwife, nursing assistant, TBA)**Observations****Response**
(Circle response)**Availability and storage supplies**

1. Is the supply of gloves adequate?

(A) supply: number of pairs of gloves available = _____

(B) demand: number of deliveries last
month = _____ times 3 = _____

Supply (A) is greater than demand (B) Yes No

2. Is the supply of plastic aprons adequate?

(A) supply: number of plastic aprons = _____

(B) demand: number of staff responsible for delivery
care that are on duty = _____

Supply (A) is greater than demand (B) Yes No

3. Are the condoms stored in:

(A) direct sunlight? Yes No

(B) wet areas? Yes No

4. Is the first in, first out principle used for distribution
of condoms? Yes No**Any other observations/comments** __________

_____**Any problems with implementation** __________

Instructions for use: Sample Questionnaire 4

Method for evaluation:

Observation of the storage of gloves and condoms, and calculations for supply and demand of gloves and aprons.

The results of these observations address another part of the fourth key question, "Are the guidelines being followed by MCH/FP service providers?". The evaluator measures use of the guidelines indirectly by examining the storage of condoms and gloves and counting the number of aprons and pairs of gloves. If gloves and condoms are exposed to sunlight or moisture, they may deteriorate rapidly and be ineffective in preventing HIV transmission. If adequate supplies of gloves and aprons are not available, blood exposure probably will occur in the labour and delivery ward. Once again, the evaluator should set specific objectives as illustrated in the following example.

Example 4

Objective: Each health facility will have three pairs of sterile gloves per patient in labour for a given time period.

Objective: In each health facility 100% of condoms and gloves will be stored properly, away from direct sunlight and/or moisture.

The following calculation may be used to estimate availability of sterile gloves.

a = the number of pairs of gloves available per month.

b = number of deliveries last month X 3 pairs of gloves.

Is a greater than b?

In this example, an assumption is made that three pairs of gloves is enough to care for a patient during labour and delivery, dispose of the placenta, and dry off the newborn infant. However, in actuality this number will vary and should be decided by the evaluator. After the calculations have been done they should be explained to the staff. If problems with supplies are apparent, the staff should be helped to correct them. The evaluator should have supplies to distribute if there are shortages. For non-sterile techniques the use of reusable heavy duty gloves or simple plastic bags as hand covers instead of costly sterile gloves should be encouraged.

Other objectives can be developed for other kinds of essential supplies, such as disinfectants (household bleach), which may be a particular problem.

8.3 Using evaluation findings

After the evaluation has been performed, the results should be tabulated and compared to the objectives. If an objective has been met or exceeded, then the MCH staff should be congratulated, and possibly, a more difficult objective set for the next evaluation. If an objective has not been met, then possible reasons for the failure should be discussed with the staff to see what can be done to achieve the objective during the next evaluation period. If health workers do not have the guidelines, better distribution is needed. If health workers have the guidelines, but do not know the content, or if essential supplies are available but the health workers are not using them; more training is needed. If the problem is non-availability of supplies, then logistics should be examined (see Chapter 6). Improper sterilization may be due to lack of knowledge, lack of equipment or supplies, or a combination of these two. Training in sterilization and/or improved logistics should improve the situation. Evaluation needs to be done periodically to note improvements and to find solutions to any new problems. In order that comparisons can be made between different evaluation periods some of the evaluation criteria should be the same. Intervals of three to six months are suggested for these periodic evaluations.

8.4 Further questions for use in evaluation questionnaires

Chapter 1:

The facts about HIV infection and AIDS

1. Can someone who is infected with HIV but has no symptoms of AIDS be infectious to others?
(Yes)
2. Which sexually transmitted diseases (STDs) may increase transmission of HIV?
(Those which cause genital ulcers, for example, chancroid, syphilis and herpes)
3. How can transmission of HIV infection through needles and syringes be prevented?
(Strict sterile technique and sterilization methods; new or sterile needle and syringe for each injection)
4. Name three behaviours of women which are associated with a high risk of HIV infection?
(Sexual intercourse with multiple partners; using a needle contaminated with HIV; sexual intercourse with a man at high risk for HIV infection owing to his behaviours - see section 1.4)

5. What are the basic ways to prevent sexual transmission of HIV?
(*Sexual abstinence, mutually faithful relationships among uninfected partners; and correct, consistent use of condoms*)
6. Why is breast-feeding recommended for most HIV-infected women?
(*Nutritional and immunological benefits far outweigh the small risk of HIV transmission to the infant*)
7. What are the three main routes of transmission of HIV?
(*Sexual, exposure to infected blood and blood products, mother-to-fetus/infant*)

Chapter 2:

Pregnancy and HIV infection

1. What are five recommendations to reduce the risk of HIV transmission in women?
(*See section 2.1 for 10 recommendations*)
2. Why is it important to prevent the need for blood transfusions?
(*To prevent HIV transmission through blood transfusion*)
3. Name at least three ways to reduce the need for blood transfusions of women during antenatal care and delivery?
(*Antimalarials; iron supplements; early diagnosis and treatment of malaria, hookworm and other parasitic infections; injectable iron; timely episiotomy; active management of the third stage of labour; prompt repair of episiotomies and lacerations*)
4. Will all babies born to HIV infected mothers be infected?
(*No, 20-45% will be infected*)
5. What are two objectives of counselling about HIV infection?
(*To prevent behaviours that lead to transmission and to provide support to those who are HIV infected*)
6. If HIV testing is available, which pregnant women have the greatest need for both HIV counselling and testing?
(*Women with high-risk behaviours; women who develop symptoms of AIDS during pregnancy; women who contract a sexually transmitted disease or develop Kaposi's sarcoma; and women with a partner who develops AIDS*)
7. What special prenatal care is required for women who are HIV-infected?
(*More frequent visits to identify early symptoms of AIDS, emotional support; treatment of symptoms of AIDS*)

Chapter 3:

Preventing HIV transmission during labour and delivery

1. To which body fluids do universal precautions not apply?
(*Urine, sputum, breast milk, faeces, sweat, tears*)

2. List in correct order the three steps for dealing with blood spills.
(– Cover with absorbant material and flood with appropriate disinfectant to decontaminate,
– after 10 minutes, clean up mixture of blood and disinfectant and
– wipe area clean with disinfectant)
3. What are three ways to dispose of placentae?
(Burying, throwing down the pit latrine, incinerating)
4. What are three important points in disposing of needles, scalpel blades and other sharp objects to prevent HIV transmission?
(Handle needles, scalpel blades and other sharp objects as little as possible after use, do not recap disposable needles, place needles, scalpel blades and other sharp objects in a puncture-proof container)
5. Can (name of bleach available locally) kill the HIV?
(Yes)

Chapter 4:

HIV infection and care of the newborn

1. Name at least three ways to minimize contact with blood or body fluids during the care of the newborn after delivery?
(Delay cord clamping; wear gloves when wiping off blood and amniotic fluid from the skin of the newborn; always use mucous extractor with a trap when mouth suction of the airway cannot be avoided, use needle and syringe to collect cord blood)
2. Following delivery, why are gloves recommended when caring for the baby before it is dried off?
(To protect the health worker from any contaminated fluid which is on the baby from the delivery)
3. When contact with infected materials occurs, what is the most important immediate action to be taken?
(Wash the fluid or material off with soap and water)
4. Why do almost all children of HIV-infected mothers possess HIV antibodies at birth or during infancy, although only 20-45% are infected?
(Maternal HIV antibodies are passed through the placenta from the mother to the infant)
5. Name four common symptoms of HIV infection in children.
(Fever, weight loss, failure to thrive, chronic diarrhoea)
6. What are three health education messages to give to mothers for the care of HIV-seropositive newborns?
(Breast-feed them; provide early and vigorous therapy of common infections; give immunizations on schedule)

Chapter 5:

Other aspects of HIV infection

1. What are three occasions when health care workers may have the opportunity to give health education about HIV prevention to women? (*Prenatal clinic, child health clinics, family planning clinics, sexually transmitted disease clinics*)
2. What information about HIV prevention can women share with their husbands or sex partners? (*see section 5.1*)
3. Does an HIV infected woman who is pregnant need to use condoms? (*Yes, to prevent transmission to her partner*)
4. Name ten important points concerning the correct use of condoms. (*See section 5.2 for 15 points*)
5. What are three important messages to give adolescents concerning HIV prevention? (*Abstinence before marriage, faithfulness within marriage, and consistent and correct use of condoms if these cannot be achieved*)
6. What are three ways to reach adolescents for health education about HIV? (*School health education programmes, social clubs, church groups, places of employment*)

